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ORIGINAL ARTICLES.

CARDIOPTOSIS.

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THE downward falling of the heart, which this term implies, is a condition to which only inadvertent reference is made in medical literature, notwithstanding the fact that the personal observations of the writer show it to be more than a mere phenomenon. In this connection, congenital anomalies, such as transpositio cordis and ectopia cordis, the result of fissural malformation of the anterior thoracic and abdominal wall will be wholly disregarded. The recent literature on cardioposis is practically limited to the observations of Rummo¹ and Ferrannini.² The former unfortunately includes under the designation, cardioposis, luxations of the heart without specifically limiting the term to an essential ptosis of the heart. Ferrannini, while recognizing ptosis of the heart as an essential condition, associates it with anomalies in the form of the body. He contravenes the current assumption, that downward displacement of the heart is the result of mechanical influences which force it downward such as tumors, pleural effusions, etc. In his four reported cases, the cardiac dulness was of normal extent, but both the upper and lower borders were lower than normal and there was decided epigastric pulsation. In all, there was mitral stenosis. The patients showed abnormalities of growth and other signs of imperfect development of the skeleton and large vessels and he believes that cardioposis was caused by congenital imperfections in the vascular system and by the mitral stenosis which he considers to have been congenital. The loss of elasticity in the vessel walls and the enlargement of the heart allowed of the dropping of the organ downward. My own observations refer to individuals in whom no cardiac anomaly was present beyond malposition of the organ and when murmurs were demonstrable, they were accidental. The cases referred to permit of the following etiological classification: (1) Voluntary cardioposis; (2) cardioposis associated with ptoses of the abdominal viscera; (3) cardioposis of accommodation; (4) primary essential cardioposis, with no other cause, beyond a supposititious one, of impaired tonicity of the large blood-vessels supporting the heart.

The situs of the heart is maintained by pulmonary suction. The lungs occupy all of the chest excluding the area occupied by the mediastana. To occupy the thoracic space, the lungs must undergo considerable stretching and this is made possible by the large amount of elastic fibers which

enter into their histological composition. For this reason, the lungs show a constant tendency to contract and this inclination is augmented during inspiration but the atmospheric pressure within the lungs overcomes this tendency and as a consequence the lungs are kept in relatively close contact with the chest walls and the contiguous intrathoracic structures. The lungs thus exercise a negative pressure or suction on the structures referred to, which is called pulmonary suction. The presence of air or fluid in the pleural cavity of one side diminishes the pulmonary suction on that side and the greater suction of the unaffected side will cause the heart to be drawn to the latter side. Displacement of the diaphragm is a late phenomenon of gas or fluid in the pleural cavity and only occurs in the presence of large accumulations of fluid or gas. Another factor which influences the situs of the viscus is the position of the diaphragm to the central tendon of which the pericardium is attached. Every descent of the central tendon of the diaphragm means a downward movement of the heart. Physiologists have taught that the central tendon is capable of only limited movement and Campbell³, asserts, that, when the pulsating heart is felt in the epigastrium after deep inspiration, it is not due to an actual descent of the heart but to a lifting upward of the thoracic cage over that organ. The Roentgen rays, however, have despoiled the physiologist of many accepted facts. The rays show that the heart descends during inspiration and ascends during expiration. During the former phase of respiration, the silhouette of the heart becomes more defined, the transverse diameter diminishes and the heart inclines slightly towards the right. During inspiration, the cardiac pulsations show less amplitude than in expiration, a fact which may be referred to the stretching of the pericardium during inspiration. During expiration, the heart rests on the diaphragm with its long axis at an angle with the median line of the body but with each inspiration, the heart becomes more vertical with the long axis less inclined toward the horizontal. Measurements of the transverse diameter of the heart show it to be less during inspiration than during expiration. During deep inspiration, a clearly defined space may be seen between the heart and the diaphragm for in this phase of respiration, the heart is supported by the blood-vessels and does not rest on the diaphragm.

Etiology.—There are other factors beyond those mentioned in my etiological classification which induce cardioposis. Some of these factors are: (1) Increased size and weight of the heart; (2) aneurisms and new growths which displace the heart downward; (3) adhesions, pleural or pericardial. None of these factors,

however, were concerned in the cases which have come under my observation.

Voluntary Cardiotosis.—The most pronounced case of this kind which ever came under my observation⁴ was that of an individual who could produce voluntary dislocation of the heart, stomach and kidney. He had developed phenomenal control of his diaphragm. With the gastrodia-phane, one could observe with what ease the individual in question could shift his stomach about. He could dislocate his stomach downward to a point on a level with the crests of the ilia and then by a supreme effort, he could draw his stomach upward until it could no longer be seen. He could develop a phantom tumor at will by buccal insufflation of the stomach, relaxation of the recti muscles, forcible contraction of the diaphragm and forward arching of the vertebral column. His apex beat, which was felt in the fifth, could be made to descend to the seventh intercostal space and it was maintained in the latter situation until his control of the diaphragm was relinquished.

Cardiotosis, a Participating Condition in Splachnoptosis.—Cardiotosis, associated with Glénard's disease, is, in my experience, rarely associated with symptoms referable to the heart beyond the objective sign of misplacement of the organ. The position of the diaphragm, and with it the heart, is greatly influenced by intra-abdominal tension. In its passive state, the diaphragm lies high owing to the negative pressure on its upper and the positive pressure on its under surface. Two factors enter into play in maintaining intra-abdominal tension, viz.: pressure of the atmosphere on the yielding abdominal parietes and contraction of the abdominal muscles. Intra-abdominal tension varies from hour to hour and is much increased by augmented intragastric and intestinal pressure. I have already shown⁶ the influence of a dilated stomach and distended colon on the position of the heart by artificial insufflation of the stomach and colon while the Roentgen rays were traversing the chest. The tonicity of the abdominal muscles is an essential factor in maintaining the normal position of the underlying viscera. Flaccid abdominal walls diminish intra-abdominal tension and conduce to ptosis of the abdominal organs, descent of the diaphragm and prolapse of the heart.

Cardiotosis of Accommodation.—We have long recognized the almost intelligent function of muscles whether displayed in fixing a diseased joint or spine, or in protecting an inflamed serous membrane. Now the midriff will become fixed in the deepest inspiration when, if for any reason, there is any encroachment on the respiratory area in the upper thorax. With this descent of the diaphragm, there is also a downward luxation of the heart which I have referred to elsewhere⁶ as the dislocation of accommodation, it being a mere act of compensation on the part of Nature to augment the area of respiration which has been compromised by the presence of an aneurism or tumor. It is usually taught that descent of the

heart in aneurism and in an intrathoracic neoplasm is purely of mechanical genesis but cardiotosis occurring early in these conditions, at a time when the mechanical element can be of no consequence suggests descent of the diaphragm as the only plausible explanation. In old age, the accommodation of dislocation is commonly present and the low position of the diaphragm and heart is a mere accommodation phenomenon to compensate for the increased length of the aorta. If we make firm compression of the upper thorax of a child one may note the immediate descent of the heart. I have observed dislocation of accommodation in thoracic aneurism if the latter is unaccompanied by aortitis.

In health during deep inspiration, there is usually a free space between the heart and diaphragm, and the heart does not rest on the latter but is supported by the blood-vessels. In aortitis and aneurism associated with anginous signs, the diaphragm lies high, as if to support the heart and diminish traction on the blood-vessels. This intelligent display of muscle instinct which is in part voluntary causes the heart to lie high if in aneurism pain predominates and to lie low, if dyspnea is the predominant symptom.

Primary Essential Cardiotosis.—The majority of cases observed by the writer belong to this category. There was no associated condition present to account for the cardiac ptosis beyond a relaxation of the arterial system and the writer is constrained to refer its genesis to a hypotonicity of the large blood-vessels which support the heart. Vascular hypoplasia is an almost constant condition in chlorosis and is often encountered in other conditions, notably in persons of tuberculous habit. There is no reason to believe that this congenital defect of development is ever wholly corrected and it may persist throughout life. Associated with this hypoplasia is a pronounced elasticity of the blood-vessels so that the aorta may be stretched like a rubber band. The pathologist often has an opportunity to observe the elasticity or non-elasticity of the arteries at a necropsy. Atheromatous arteries appear long after removal from the body because they are no longer endowed with elasticity, whereas elastic arteries appear shorter owing to their retractility. In three of my cases only could I make out a distinct history of chlorosis although at the time of my examination, hemanalysis demonstrated nothing characteristic of that affection.

Symptomatology.—Here reference will only be made to the cases of primary essential cardiotosis which have come under my observation. The signs are subjective and objective. The tableau of subjective symptoms is by no means characteristic. Very often cardiotosis may be present without subjective symptoms and the condition is only observed accidentally. In other instances a feeling of weight or oppression is experienced in the lower chest which is referred by the patient to the lower sternal region or epigastrium. This symptom is associated with epigastric pulsation and dyspnea. The dyspnea is very

much intensified by exertion. One of my patients, a physician, tells me that when he is compelled to lean forward to examine a patient in bed, his dyspnea becomes so pronounced that he cannot continue his examination. Even as a child, he noticed this dyspnea upon exertion, but of late years the dyspnea has become so intensified that he is almost compelled to give up the practice of his profession. Some patients show a preference for certain postures in bed but this manifestation is too inconstant to be of any value in diagnosis. Objectively, percussion is too indefinite to permit of accurate delimitation of the cardiac boundaries: the upper border of cardiac dulness, superficial and deep will be found to be lower than normal. The apex beat is with difficulty palpated and in lieu of the punctated beat a diffuse one is felt. Auscultation may or may not elicit cardiac murmurs and if present, they are greatly influenced by posture—a certain posture will bring them in evidence, whereas another posture will cause their evanescence. The murmurs are probably accidental and dependent on the malposition of the heart.

The pulse suggests diminished tension of the arterial wall; it is soft, readily compressible and its dirotic character is clearly brought out in the sphygmogram.

The pathognomonic signs of cardioposis are elicited by skiascopy. No description nor diagram can adequately describe the characteristic picture of cardioposis. This can only be appreciated after a thorough acquaintance with the normal heart and its respiratory and postural mobility. The normal heart during deep inspiration is practically vertical and between the heart and the diaphragm there is usually a well-defined space. During expiration the long axis of the heart describes an angle with the median line of the body but this is not appreciable; to the tyro it appears as if the heart were sunk more deeply into the diaphragm; the upper part of the viscus still maintaining its vertical position.

In cardioposis, the long axis of the heart appears to be practically parallel with the surface of the diaphragm; the boundaries are poorly defined and deep inspiration does not bring into evidence the clearly defined space between the heart and the diaphragm. This posture of the heart could be assumed if the midriff were abnormally high as in abdominal distention, yet, if the long axis of the heart were measured, it would be found by describing the distance of the axis on the chest wall, that it would extend higher in the thorax than would a normal heart. The highest anatomic point of the heart is represented by the left auricle which is at the lower border of the sternal insertion of the second rib, its lowest point is at the upper border of the sixth costal cartilage or in the fifth intercostal space just within the mammary line. Measurement of the long axis of the heart in cardioposis would show that the heart lies lower than normal. The site of the normal heart is influenced by respiration and attitude. In cardioposis there is little or no respira-

tory or attitudinal dislocation. Reference has already been made to the changes assumed by the heart during respiration. My measurements of attitudinal dislocation show that in the left lateral posture, the heart moves on an average of 2.6 to the left and 1.1 cm. upward; in the right lateral posture, 1.5 cm. to the right and 0.5 cm. upward. As a rule, attitudinal dislocation was less evident in children than in adults and less marked in obese individuals than in lean ones.

Treatment.—This can be dismissed in a word. I have found nothing of avail in the treatment of my cases beyond the wearing of good fitting abdominal support with pressure exerted in the upper abdomen. In cardioposis associated with Glénard's disease, exercises having for their object strengthening of the abdominal muscles and the diaphragm often yield excellent results coupled with massage, faradization and hydrotherapeutic procedures. I have seen no results from medication, although digitalis would seem to be theoretically advisable in cardioposis of the primary essential variety.

REFERENCES.

- 1 La Riforma Medica, Dec. 28, 1900.
- 2 Centralbl. f. innere Med., Jan. 1900.
- 3 Respiratory Exercises, p. 52.
- 4 Medical News, April 13, 1895.
- 5 Pacific Record of Medicine and Surgery, Sept. 15, 1898; Medical Record, Sept. 8, 1900, and American Medicine, Jan. 3, 1903.
- 6 American Medicine, Jan. 3, 1903.

MANAGEMENT OF BREECH PRESENTATIONS.

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IN the management of breech presentations the attitude of the accoucheur during delivery, so long as there is no immediate danger to the child or mother, should be one of watchful observation. As a rule, the results to the child are unquestionably more favorable if nature does her work unaided, but should there be any faltering in the natural forces the physician should be in readiness to avert by prompt interference the perils which, in pelvic presentations, are associated with delay.

Pains should be taken to preserve the membranes until dilatation is complete, therefore, unnecessary examinations should be avoided; the patient should be placed upon her side and cautioned not to strain, and after the rupture of the membranes, it is best for the expulsion of the trunk to take place slowly, but when the hips appear at the vulva, the attending physician should be ready to extract at once in case of emergency. The patient should be placed across the bed with hips well over the edge of the bed, and she should be instructed to bear down with the pains.

The question of anesthesia is not always easy to decide. It is very useful in unruly patients, but it sometimes lessens the pains, and besides, you lose the very beneficial cooperation of an intelligent patient, which is a drawback to its use. The rectum and bladder should both be emptied. The operator should have at hand in case of need,

forceps, a soft fillet, warm napkins, hot and cold water.

The operation is divisible into three acts: (1) Extraction of the trunk as far as the shoulder; (2) extraction of the arms and shoulders; (3) extraction of the head.

The extraction of the trunk should take place slowly, and tractions should be made during the pains only, and it is desirable that the uterus be closely retracted upon the child during the entire period of its expulsion. When this does not occur the arms are liable to be pushed upward to the sides of the child's head, the chin to become extended, and the delivery of the head would become very difficult; hemorrhage, too, is more likely to follow hasty delivery than where the uterus has had time to pass into a state of complete retraction; therefore firm pressure should be made upon the uterus through the abdominal walls, so as to maintain firm contraction upon the head of the fetus. Traction should be made downward and backward in the direction of the superior strait, until the breech comes in contact with the floor of the pelvis.

When the breech alone presents, with both extremities reflected upward parallel to the anterior surface of the child, spontaneous delivery is sometimes prevented by the fact that the extended limbs act as splints which interfere with the lateral flexion of the trunk, and, consequently, with its accommodations to the curve of the parturient canal. If in pure breech presentations obstetrical aid becomes necessary, the operator is embarrassed by the absence of a natural handle, by means of which extraction can be effected; but, if the child is of ordinary size and the resistance at the pelvic floor is not too great, the expulsion of the child may sometimes be effected by graduated pressure upon the fundus of the uterus. Should this measure fail, manual extraction should be attempted. The index finger should be inserted into the fold of the anterior groin, and traction made directly downward. If the breech is low, both index fingers may be used, one in each groin, but should manual extraction fail (which is very likely to happen, especially in primipara), then instrumental aid becomes necessary. The choice consists of the forceps, the fillet, the blunt hook, and, when the child is dead, the cephalotribe in the order given.

But the forceps, being designed to fit the fetal head, when applied to the breech to which its curves are not adapted, is liable to slip off when traction is made, thus endangering the maternal soft parts and if, with the view to prevent slipping, the handles are compressed firmly, it has been urged that fracture of the femur may occur, or that the circulation of the cord may be cut off by the pressure, or that fatal injuries may be inflicted upon the fetus by the pressure of the points of the forceps upon the abdominal viscera, but with the axis traction forceps of Tarnier, some of the objections have been very materially diminished. The forceps should never be used until the child has passed the superior strait, and some au-

thors advise, not until it is well down upon the floor of the pelvis, and in the use of the forceps there should be no exhibition of strength. The tractions are most effective if made during the pains, and gradual and intermittent tractions will soften and dilate the material soft parts better than continual hard pulling. They should be aided by simultaneous pressure upon the fundus of the uterus.

If the forceps fail, or if, owing to the non-engagement of the breech, they are contra-indicated and an extremity cannot be brought down without the employment of force, the next best thing is the fillet. The objections urged to its use are that the fillet might become twisted or, in getting wet, it might form an uneven band, which, even with care, might cut into the tissues of the child, or that in some cases it causes partial extension of the extremities, and as a consequence might slip forward upon the thigh and, in making traction, cause fracture of the thigh bone.

But Ollivier suggests that this extension can be prevented by passing the finger into the rectum of the mother and pressing the breech forward as tractions are made.

The fillet should be passed over the anterior thigh, the tractions should be of moderate force and should be made only during the pains, and should be sustained by external pressure over the fundus uteri. The fillet can be made of any strong material, but caution should be used in preventing folds, as they are apt to cut into the soft tissues of the child. In the absence of other appliances, or should failure attend the measures already described it is well to remember that the blunt hook owes its sinister reputation not so much to its defects as to proper caution in its use, it will not break the femur if adjusted in the groin; it will not produce serious contusions if the blunt end is carefully guarded by the fingers, and injuries to the maternal tissues can only occur where leverage movements are made. Steady downward tractions made with moderate force, with a hand in the vagina to guard the point of the instrument and to give warning of commencing extension of the thigh, will, as a rule, suffice to prevent accident.

No instrument will seize the breech so securely as the cephalotribe. If, therefore, the child is known to be dead, the cephalotribe screwed tightly to the breech can be trusted to act as a reliable tractor.

Management of the Cord.—As soon as the cord has passed out of the vagina, traction upon the navel should be avoided, by gently pulling the cord downward into one of the recesses until some resistance is experienced. Sometimes the cord is found passed between the child's legs and up over its back, in which case traction should be made upon the placental extremity, and an attempt made to slip the loop over the posterior thigh. But if this fails, and the cord is wound around the child's body, two ligatures should be applied and the cord divided between, and every

effort be made to deliver the child as speedily as possible.

Liberation of the Arms.—After providing for the safety of the cord, the pelvis of the child should be seized with both hands and traction made in a downward direction until the shoulder blades make their appearance. Then no time should be lost in liberating the arms. If they are folded upon the chest, delivery is an easy matter, but unless the uterus has been kept well contracted down upon the child's head, one or both arms are apt to be extended upward to the sides of the child's head. In such cases the difficulties in liberating the arms are often very great, owing to the increased amount of space afforded by the curvature of the sacrum an attempt should first be made to release the posterior arm. This is best accomplished by drawing the body of the child upward and to the side, causing the posterior shoulder to sink deeper into the pelvis and furnishing more room for the introduction of the hand. Then two fingers should be passed along the side of the child to the elbow-joint, which should be pushed across the face, and brought down over the thorax. Pressure should always be made at the elbow-joint and not upon the humerus, otherwise a fracture of the humerus is liable to occur, in releasing the anterior arm, as there is rarely space enough between the symphysis and the shoulder to allow the fingers to reach the elbow. It is customary, after releasing the posterior arm, to rotate the trunk, so as to bring the anterior arm backward into the cavity of the sacrum. This is accomplished by drawing the liberated arm upward under the symphysis pubis. If the back is turned to the left, the arm should be drawn upward along the left labia, and if turned to the right it should be turned along the right labia. In making artificial rotation, it is well to bear in mind the warning of Dr. Barnes, that the atlas forms with the axis a rotatory joint, so constructed that if the head be rotated beyond a quarter of a circle, the articulating surfaces will part, and the spinal cord is compressed or torn. Therefore, in making rotation be sure that the head is rotating with the body. It is well to mention here that the body is always to be kept wrapped in warm napkins until complete expulsion of the child.

Extraction of the Head.—In the extraction of the head we have to distinguish, first, cases where the head has entered the pelvis and has only to overcome the resistance of the perineum; second, cases where the head is retained at the pelvic brim by contracted pelvis, stricture of the os uteri, extension of the chin, or insufficient expulsive action of the uterus and abdominal muscles.

Extraction of the Head After it has Entered the Pelvis.—In Smellie's method the child is wrapped in warm napkins and placed astride the operators arm, the index and middle fingers are passed into the vagina and placed in the canine fossæ, to the sides of the child's nose. By this means flexion of the head is induced. At the

same time upward pressure is made with the fingers of the other hand upon the occiput; then, by raising the trunk, the face is rolled out over the perineum. In case this method fails, we should use the combined method by placing two fingers in the child's mouth and, by traction upon the lower jaw, flexion should be accomplished. With the other hand, traction should be made upon the shoulders, and as the head descends the body should be raised, whereby the face sweeps over the perineum. By the combined method, there is obtained the greatest amount of traction force, in combination with the least degree of violence to the child. As the power is exerted chiefly upon the shoulders, the fingers in the mouth are not likely to fracture the jaw. When the occiput is turned into the hollow of the sacrum, forehead against the symphysis, the process just described should be reversed, as the fingers are forked over the shoulders, the back of the child should rest upon the arm, and, with one or two fingers of the other hand the chin should be flexed, traction made downward and the forehead rotated under the symphysis.

Extraction with the Head at the Brim.—Schroeder, and a considerable portion of the modern German School, employ combined traction upon the shoulders and chin for all emergencies alike, whether the head be high or, after its entrance into the pelvis, as the life of the child depends upon the speedy extraction of the head, it is well to become familiar with the different procedures, so that if you fail in one you can resort to the other.

The Prague method consists in seizing the feet, with one hand, and drawing the body of the child nearly directly downward. The fingers of the other hand are hooked over the shoulders of the child, traction is exerted with both hands simultaneously and, in the absence of pain, pressure should be made upon the head by an assistant. After passing the superior strait, the procedure should be as described above.

Forceps to the after-coming head has been condemned by some, and warmly approved by others. Personally I have never had any experience with them in any of these troubles, but it is recommended by some authors in overcoming the resistance of a rigid perineum in strongly built primiparæ, but it is chiefly indicated when both chin and occiput are arrested at the superior strait. With the chin anterior the forceps should be applied under the back of the child, and the handles raised so as to bring the occiput into the hollow of the sacrum. With the chin to the rear, the forceps should be applied under the abdomen of the child, and the face of the child drawn into the hollow of the sacrum.

When the arrest of the head is due to stricture of the os uteri, the forceps will sometimes bring the head rapidly through the cervix, when traction on the feet only serves to drag the uterus to the vulva. In stricture of the cervix great care must be exercised to avoid laceration, as under no circumstances are extensive ruptures of the

lower uterine segment more apt to occur than in the forcible extraction of the after-coming head. The axis traction forceps are particularly serviceable in these cases.

AMBER YELLOW GLASS IN THE EXAMINATION AND TREATMENT OF EYES.*

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In these days of revolutionary scientific discoveries, among the most interesting of revelations are those bearing upon the physics of light. The exact nature of the X-ray has not yet been determined, and the discovery of radium and its properties has brought into question the law of the correlation of forces, and threatens the overthrow of the theory of the luminiferous ether. Medical workers have not considered it necessary to wait for a determination of these theoretic considerations, before applying any known forces to practical use; the X-rays are being used for valuable diagnostic and therapeutic achievements, and Finsen, utilizing well-known laws of light and color, controls the suppuration of smallpox, and institutes the most successful treatment of lupus as yet known.

While the study of phototherapy is being thus energetically carried on about us an occasional discussion as to the amount of white light proper for inflammatory and postoperative eye cases seems to satisfy the minds of most ophthalmologists. The largest eye hospital in this country is rendered gloomy and unhealthy with window shades of a dark indigo blue. Blue glasses, relics of a scheme conceived in previousness some twenty-five years ago, are still used to protect eyes, although the color is the worst, or one of the worst, for this purpose. "London smoke" is no doubt superior to blue for such protection, which is, nevertheless, only partial, and obtained at the expense of diminished vision. It has been shown that the blue-violet or actinic rays are the only ones capable of causing irritation or chemical inflammation of the eyes, having an analogous action to that upon the skin, or the photographic film. Some observers inform us that these rays do not penetrate glass, but we must evidently modify this if we accept the former statement. Photographs are taken through a white glass lens, and may not be developed in light shining through white glass; a pin hole photograph may be taken through a small aperture in amber yellow, but not in white glass. The irritating effect of light upon certain eyes is often only slightly diminished by white glasses correcting the refraction, although there is some protection from heat, and irradiation of light within the eyeball is decreased. Furthermore the spectrum with the violet rays is obtained with a prism of white glass.

In attempting what might be called photo-

chromotherapy of the eye we must deal with peculiar conditions, in that we are working upon a complicated organ of special sense, highly sensitive to pain and irritation with a constant demand that the visual function shall not be impaired. If the suppuration of smallpox may be prevented by red light, it is natural to suppose that this color would benefit abscess of the cornea; yet red is an irritating color to the central nervous system of some persons, and its action upon the retina may be by no means pleasant. If actinic rays from electric light may cure lupus, perhaps mycotic keratitis would yield to them; yet their application to the eye might result in chemical inflammation, so that the first trial of this treatment would seem to call for caution, even in an old case of dense pannus.

The preceding considerations in the course of time directed the interest of the writer to the green and yellow rays for purposes of ocular therapeutics. The former color best protects the eyes from heat, but imperfectly from the blue rays, and diminishes the light; the latter, as obtained through amber-yellow glass, gives but little protection from the heat rays but almost perfect protection from the chemical rays.* In addition, vision is not impaired by the yellow glass, and since the yellow ray is taken as the standard for determining the index of refraction, formulae for correcting glasses are interchangeable between yellow and white. The chromatic aberration of the eye is corrected in the only manner yet suggested, simply and practically, centrally and peripherally, by the amber yellow glasses, and dazzling reflections from such surfaces as that of the cornea, or from glazed paper and other objects, are softened and modified.

For the purpose of applying these principles to oblique and indirect examinations, I had made about two months ago, a lens with a focal distance of $2\frac{1}{2}$ inches. Because of the difficulty of obtaining glass of the required color, a bi-convex lens of white glass was split and cemented upon a plain glass of medium light amber yellow. This proved to be a success, and the manufacturer has pointed out that a lens of this power, ground of colored glass throughout would be darker at the center than at the periphery, while the one described is of a homogeneous tint. With this lens there is less congestion, lacrymation, photophobia and pain in examined eyes than without it; it is, therefore, suitable for examination by the oblique method of lesions of the cornea, iris and ciliary body. Discoloration of the iris with the yellow light might cause some mental confusion to the examiner before he becomes accustomed to it, and the dulled corneal reflex makes the appreciation of a foreign body upon the cornea less easy to the novice, because of diminished contrast between the foreign substance and its background. In examination of the ocular fundus by

* Spectroscopic analysis does not show this to be as perfect a ray filter as, for instance, glass stained with a saturated alcoholic solution of tropæolin ooo, with which it was compared. Amber-yellow seemed, however, to be the most practicable color in grinding the glasses and as the sequel will show, was eminently successful for the purposes required.

* Read before the Section on Ophthalmology of the New York Academy of Medicine, April 20, 1903.

the indirect method the yellow lens is more comfortable than white for both examining and examined eyes, and the picture of the background is not much changed by the lessened reflex from the retinal vessels. The sphincter of the iris is not contracted so much by yellow as white light, sustaining the suspicion already entertained by some of us that the actinic rays are the most active in causing contraction of the iris; of course the relaxed pupil has its advantages in diagnosis and treatment. Should one wish yellow light for direct examination, an adjustable glass of the desired color for the source of illumination might be used, or a reversible ophthalmoscopic mirror could be stained upon one side. A thin yellow disc to slide on and off the mirror of the "Loring" was made at my request but has not seemed particularly useful as yet.

Before proceeding to the treatment of eye diseases with yellow glasses it seems well to note some effects upon healthy eyes. Comparisons are mostly made between eyes with or without the amber yellow glasses, not between corrections in yellow or white. The glasses are numbered in the usual manner, but the darker ones seem unnecessary, and from No. 1, the lightest, to 3 all-sufficient. In the investigations described No. 2 was used unless otherwise stated. The first observations made were upon vision; in about 60 per cent. this was unchanged, in over 35 per cent. improved, in less than 5 per cent. diminished. Diminution of vision, in no case of any considerable degree and improvement, one-fourth of the time amounting to an extra line on the test card at 20 feet, occurred in eyes having an appreciable amount of regular astigmatism. Failure in correcting the increased aberration caused by a larger pupil would account for poorer vision, success in the same direction for better sight with decreased irritation from elimination of actinic rays as an additional factor. The effect of yellow glass upon accommodation is hardly appreciable, but there is probably slight relaxation. As might be expected the effect upon spectral blue and pigment blue is different. The sky has a grayish or leaden hue, and light blue stained or painted objects have a greenish tinge; darker blue pigments show more suppression of the color and may appear gray or black. Adjustment of the new color values takes place after a few moments' wearing of the glasses. These do the most good upon certain dull days when the actinic rays are strongest, and least upon rainy days. More color saturation is perhaps needed for protection from intense electric or gas light than sunlight, but less for a kerosene burner.

The indications for the use of yellow glasses in the treatment of asthenopia and ocular neuralgias are in some cases easy to determine. Take, for instance, a young girl, with little pigment in the iris and retina, who suffered from pain about the eyes and forehead after an attack of chicken-pox: sph. + 0.25 was the only glass accepted and there was orthophoria; bright light produced or increased the symptoms. The correction of the

refraction with white glass failed to give relief, which was accomplished by a change to yellow glass. The method would seem likely to be an important addition to the present forms of treatment for asthenopic cases with hyperesthesia of the retina, but perhaps it would be well to be cautious in its use because of possible secondary effects. Patients vary in their statements regarding the effect of blue light after the removal of their glasses and the matter is too intricate to be decided upon the theory of complementary colors. Just what place yellow glass corrections should take in astigmatic and muscular asthenopia is a matter of supposition on my part, as Messrs. Gall & Lembke, the opticians, notwithstanding their interest and energy in the matter, have been unable to grind cylinders and prisms in this glass until very recently; and I have not been able to obtain reports of results in the cases where they have been ordered. For the sake of the appearance No. 1 glasses have been used, although less effective as a ray filter than No. 2.

In cases of corneal disease, two with superficial central keratitis had improved vision with the yellow glass, and in one, the improvement seemed to be continued after removal of the glass, thus: $20/70$ with smoke glasses No. 2, $20/60$ after these were removed, $20/30$ with the amber yellow glass, $20/40$ after removal. More peripheral corneal affections, three ulcers, four phlyctenular, three with pannus were not improved as regards vision, but the latter at least appeared to have less irritation; in one of these, with chronic conjunctivitis following trachoma, the glasses were ordered, and persistent pain increasing in severity as the day advanced, was relieved from the first day they were worn; within five days ocular congestion disappeared.

In the first four cases with incipient cataract vision was not improved as shown by the test types; in two where the glasses were worn the result as regards the irritating effect of light upon the eyes was satisfactory, as it was in fact in all other cases. Just two days ago, four eyes (two patients) with incipient cataract showed improved vision in three, one from $20/100$ to $20/60$, congestion of the eyes in the latter case being relieved in a few minutes, but reappearing when the glasses were removed. This patient, forty years of age, is the third of her family under my care with premature cataract, and from the histological analogy between the crystalline lens and the skin, and the destructive action of actinic rays upon the tissue of the latter, it seemed no idle fancy to suppose that chemical action of light might have caused the lenticular disease, or to imagine a possible beneficial effect upon it in its incipency from persistent yellow glass treatment.

The first pair of amber yellow glasses ordered by me were used successfully in a case of post-operative iritis, and it should need no argument to convince others of the utility and superiority of this color over others in such cases.

The effect of the glasses upon choroidal and retinal cases remains to be noted. A patient with

posterior synechiæ and hazy media in both eyes showed diminished vision in one eye with yellow glass before atropine, but improvement in the other, and improvement in both after atropine. Irritation was less, and it is to be understood that this is the result in all cases, whether so stated or not, either in simple tests of the eyes, or when the glasses were regularly worn. Two patients with chorio-retinitis and vitreous opacities, one severe, one mild showed improved vision.

The most beneficial results might, perhaps, be expected in that class of cases having diminished vision and hyperesthesia of the retina, as occurs with glaucoma or tobacco amblyopia, and I am able, fortunately, to report three such cases. The first had acute glaucoma of over two months' duration, in the right eye, when I saw her, out in the country, nearly four months ago. Posterior sclerotomy, followed by eserine, relieved the pain and lowered tension, but there is still ciliary injection and lacrymation; the other eye is healthy. This patient reports the relief from bad effects of light to be much greater with yellow than "smoke" glasses; better vision in the sound eye

of course; the other has $V = \frac{1}{\infty}$. The second patient has chronic glaucoma in each eye with complications from excessive use of tobacco; the vision and field have improved with pilocarpine locally and strychnine internally and this improvement has been held about eighteen months. During this time the only unpleasant symptoms have been sensitiveness to light and subjective color sensations, these have been relieved with amber yellow glasses after "smoke" glasses had not met with success. The third patient, over seventy years of age, had acute glaucoma in one eye, chronic in the other, both eyes having corneal macule, which latter had previously been the cause of poor vision, worse in the eye with the acute attack, which now has $V = \frac{1}{\infty}$. The other eye had $\frac{20}{100}$, corrected, with the nasal portion of the field down to 7° from the fixation point. Radical operation being considered inadvisable, posterior sclerotomy was done upon the eye with the acute attack, and eserine used in both. This treatment relieved the one eye of its acute symptoms, and the other has had no deterioration of vision or field for a year. Retinal irritation from light was annoying, and only partly relieved by "smoke" glasses, which gave $V = \frac{20}{200}$. The eyes are comfortable with amber yellow glasses and $V = \frac{20}{70}$ with them.

It will be seen that the above reports show conclusively that amber yellow glass has certain good effects upon the internal structure of the eye. Only a hint is given as to the effect upon external inflammations, for, with glasses mixed light must be admitted from the sides. In order to properly show the effect of light of any color upon external inflammation of any character, a specially lighted room would be necessary. There is a class of cases in which I am particularly anxious to see the effect of selected light, and where a failure with amber yellow

glasses will not necessarily preclude success with some other color. These are the eyes with summer conjunctivitis, often with papillæ, follicular granulations, or phlyctenules, where there is photophobia with lacrymation. The irritation seems to be kept up by various forms of dust, or by bright light, but it is by no means sure that the heat rays are not a contributing cause. Treatment of these cases during the summer season has so far met with indifferent success. Amber yellow glasses are well worth trying for these eyes, since in others, they are a protection from irritation and improve vision.

118 East Seventy-second Street.

THE TREATMENT OF CHRONIC CATARRHAL DEAFNESS (OTITIS MEDIA CATARRHALIS CHRONICA).

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A BRIEF résumé of the etiology and pathology of Otitis Media Catarrhalis Chronica may be of profit as a preliminary to the discussion of this disease from a therapeutic standpoint.

Among the more common exciting causes of catarrhal deafness, adenoid vegetations and other nasopharyngeal abnormalities occupy a prominent place. By their pressure they excite catarrhal conditions which frequently terminate in a partial or complete occlusion of the Eustachian tube, hindering drainage and forming a nidus for an army of bacteria which subsequently invade the mucous membrane of the tympanum; the mucosa of the middle ear becomes thickened and the tympanum filled with exudate. The whole structure gradually becomes involved, the membrana tympani becoming thickened and frequently filled with chalk deposits.

Occlusion of the tube occurs with contraction of the tensor tympani, and ankylosis of the various joints of the ossicles is a later development followed by dragging in of the entire membrana tympani toward, or even against, the promontory. Even hyperostosis of the ossicles may occur.

Ultimately sclerosis, with fibrous and osseous ankylosis of the plate of the stapes, pressure upon the endolymph and interference with the circulation within the entire capsule results. Although there is an anastomosis between the vessels of the tympanum and labyrinth, it is so circuitous that pathological conditions in the latter must rather be ascribed to pressure than to circulatory disturbances.

Tinnitus may depend upon defective circulation, arteriosclerosis, anomalies of tension in the membrana tympani, tubal contraction or constitutional causes.

Hyperplastic cases are characterized by increased density in the fibrous portion of the tympanic mucosa, diminished size of the glands, reduced secretion with new tissue formation and contraction of the ligaments, resulting in dislocation of the ossicles and membrana tympani.

Finally, there is ankylosis of the ossicular chain or chalky deposits in the oval window. Some cases are due to defective teeth, as dental irritation from cavities or defective fillings may cause irritation of the otic ganglion.

Heredity is an important factor in many cases. There may exist an inherited predisposition to catarrhal or purulent inflammation of mucous membranes in general, and of those lining the cavities of the middle ear, nose and pharynx in particular.

Anatomical development is an important factor in the predisposition to ear affection. Deep niches in which are set the round and oval windows, unusual development of the promontory, extra thickness of the tegmen tympani and general reduction in the size of the attic necessarily favor adhesions and deafness after inflammation. De Schweinitz reports that an examination of 400 boys, generally healthful and athletic, in a Philadelphia school, showed hardly 24 normal drum-heads.

Improper dressing (excessive dressing, perhaps, oftener than insufficient dressing); exposure when overheated and the wearing of thin-soled shoes are prolific sources of trouble.

Fully 60 per cent. of all cases are due to nasopharyngeal catarrh. Measles, pertussus, hay-fever and similar affections have their influence on account of the extension of catarrhal inflammation to the middle ear. Rickets frequently figures prominently in the etiology of these cases.

Disordered digestion aggravates and perpetuates a large proportion of cases, not a few of which are unsuccessfully treated because this important causative factor is overlooked.

Gout is another important factor sometimes overlooked, gouty deposits being more frequently found in the ear than in any other organ.

Pathological defects in the ciliated epithelium lining of the Eustachian tube permit invasion of bacteria from the nasopharynx.

Five per cent. of all scarlet fever cases develop otitis media, while the rapidity with which destruction of the ear may result from diphtheria is almost incomprehensible. The ears are frequently involved in measles, but the disease rarely goes beyond an acute catarrh.

Typhoid fever may be accompanied by an otitis which is frequently overlooked.

The prognosis in cases of chronic catarrhal otitis media is not nearly as unfavorable as many suppose. The failures so common in our treatment of these cases are usually due, either (1) to insufficient study of the etiology and pathology of the case under treatment, or (2) to lack of persistency in pursuit of the treatment indicated. For the former the physician may be responsible, for the latter the patient is usually to blame, though patients are not usually so hard to manage if every promise to them is made conditional upon faithful, long-continued application to treatment. Many a case which looks hopeless can be wonderfully benefited by a year or two of persistent, rational treatment, to which the patient gives proper

aid. A close study of every possible etiological factor in every case under treatment is absolutely imperative to secure good results.

Frequently the mode of life on the part of the patient must be wholly changed. General medication and close attention to general hygiene are imperative, since the effects of overtire and nervous overstrain, increased still further by the fatigue incident to a considerable degree of deafness, interfere with the nutrition of the more delicate structures of the body, and so favor trophic changes which are evidenced in the ear by still further impairment of hearing.

The diet must be closely studied and absolutely controlled in each case.

The abuse of alcohol, tobacco or other narcotics must be avoided.

The daily cold bath, unless distinctly contraindicated should be insisted upon. Even the question of suitable underwear should be closely and strictly controlled. Some cases have been helped more by the prescription of linen-mesh underwear than by months and years of local treatment. Many patients are almost "clothed to death"; the more wool they wear the more frequently they "take cold," and the more rapidly they go on from bad to worse.

Adenoids or hypertrophied tonsils, when present, must be removed with as little delay as possible, unless some distinct contraindication to prompt operation exists. When thickening of the Eustachian mucous membrane, together with abnormally increased prominence of its folds and increased secretion from its glands cause occlusion of the lumen, means must be provided to secure ventilation of the middle ear. Appropriate treatment of the tube will usually give the desired ventilation by removing the occlusion.

Among the most satisfactory agencies for accomplishing this end, except in very serious cases of occlusion, we find medicated vapor.

By its employment vapors of menthol, eucalyptol, camphor, benzoin, iodine and other suitable remedies may be applied to the entire diseased area. Such a vapor given warm and under a proper pressure, restores the intratympanic air pressure, and mechanically stimulates the mucous membrane of the tube and tympanum. It causes an increased flow of blood to the parts, favoring absorption of recent inflammatory deposits or relieving chronic congestion due to lack of tone. It is possible also by employing an intermitting flow of vapor to massage the tympanum and ossicles with any desired force and frequency while medicating the entire mucous membrane with the selected medicament. For years the writer has found exceptional satisfaction in a special nebulizer for this purpose which furnishes a warm vapor instead of the cold vapor usually employed in this work. The instrument is made from non-corrosive metal without rubber lining or rubber parts, it being unsafe to use superheated air or warm vapor through an instrument having rubber parts. This special nebulizer also has an ozone attachment so that ozone alone or in com-

bination with other vapors may be applied to the tube and tympanic cavity, ozone having very marked stimulating qualities, which give it marked value in a certain large class of cases.

Compressed air, heated and charged with ozone constitutes one of the best agencies known to therapeutics for inflation of the Eustachian tube and middle ear, but is of little value, as is any vapor or gas for inflation, if marked occlusion of the Eustachian tube exists. This device generates ozone from an incandescent lighting current and supplies it in abundance whenever desired. In cases having a tendency to slight Eustachian occlusion, it is well to employ a spray or vapor of adrenalin to the Eustachian orifices for a moment before attempting through inflation. Indirect inflation without a catheter has some advantages in cases where it is sufficient. Unquestionably the Eustachian catheter method is very much abused, and in some hands works injury to the ear.

If the tubal obstruction be of long standing it may be necessary to resort to mechanical dilation, many employing Eustachian bougies having their tips covered with cotton for this purpose. A far better method, in skilled hands, consists of electrolysis. Dench's gold electrode, properly applied, rapidly removes tubal obstruction of long standing, but its skilful employment requires a thorough knowledge of electrotherapeutic principles. Indeed, a very excellent aurist may make a miserable failure of the operation if his training in electrotherapeutics be deficient, while on the other hand a very ordinary aurist who is skillful in the use of electricity will secure results which cannot be obtained in any other known way. To such a one the operation is reasonably simple, safe and certain. Several precautions must be observed in its employment, *i.e.*, (a) Neither heavy nor uncertain currents should ever be employed; (b) perfect current control (preferably by a shunt circuit rheostat) is absolutely imperative; (c) the current employed should not be of less electromotive force than 30 or more than 35 volts; (d) The current strength should never exceed $1\frac{1}{2}$ milliamperes at the beginning or five milliamperes at the end of a treatment, and the latter amperage should be very slowly approached. Many cases require no more than four milliamperes. (e) Treatment should never be given less than three days apart; (f) force should never be employed; (g) reliance should be placed upon a number of light treatments rather than upon a few heavy ones; (h) polarity of current should never be in doubt.

These points, carefully observed, remove every element of danger from the operation and leave the opponents of the operation without any ground upon which to base their opposition. Skilled operators have obtained brilliant results in a large number of these cases, and such operators will continue to get such results regardless of any criticism which may come from those who are less skilled in applying this particular form of treatment.

If the treatment be employed with reasonable skill and with due observance of the precautions mentioned the several cases of failure will be eliminated. There cannot be much pain if the voltage and current strength are properly controlled and all necessary changes of current-strength slowly and carefully made. There can be no re-formation of stricture as a result of treatment unless the current be excessive, of wrong polarity or applied too frequently. There can be no formation of a fistula unless the operator forgets the anatomy of the parts and only then, ordinarily, by the employment of excessive current or undue force. Properly employed, this treatment causes the stricture to fairly melt away beneath the slowly advancing electrode until the tip of the electrode is felt slipping into the space beyond the stricture. This method is probably the best one ever devised for such cases of catarrhal deafness as are entirely due to occlusion of the Eustachian tube.

A nice modification of this treatment consists of using a cataphoric electrode at the anode or indifferent pole, saturating it with a suitable iodine or ichthyol solution (iodine vasogen or ichthyol vasogen being sometimes preferred), and holding it against the membrani tympani during each electrolytic operation.

During the past few months experiments have been conducted by the writer with a kind of "electric douche" which has been applied to the entire intratympanic cavity, and while it is rather early to report results, yet there is already much evidence to indicate that possibly, when fairly perfect appliances have been secured and a better technic acquired, cataelectrolysis may be made to act as favorably upon old organized inflammatory deposits in the ear as it does upon similar deposits elsewhere, softening them and stimulating their absorption, in which event it will perhaps equal in importance the superheated air method, though it will doubtless require some years of work and experience to bring it to the same degree of perfection.

The promptness with which relief follows this electrolytic-cataphoric application is sometimes remarkable.

Iodine cataphoresis is a valuable adjuvant in certain selected cases, the auditory canal being filled with iodine solution and a cataphoric electrode applied, anode direct, to the tympanum.

Pneumo-massage of the tympanum externally has yielded splendid results in the hands of Pyncheon and a few other experts who have paid proper attention to technic. In the hands of some others it has probably done as much harm as good. The rule governing its application is that for simple middle ear cases, slow vibrations should be practised, while more rapid vibrations are advantageous in the cases accompanied by labyrinthine or nerve involvement.

In the experience of the writer, massage with medicated vapor through the Eustachian tube has yielded more uniformly satisfactory results, but the best results cannot be hoped for unless the

vapor is as warm as can be comfortably borne by the patient.

Removal of the membrani tympani and ossicles has been practised in desperate cases by some excellent operators, but the results are of so doubtful a character that the operation should only be employed when grave melancholia from tinnitus or some similarly urgent indication exists. Some six years ago the writer was so impressed with the brilliant results yielded by superheated air in the treatment of certain articular and chronic inflammatory diseases, pathologically similar, in many respects to cases of a certain type of chronic catarrhal otitis media, that he resolved to try this agency experimentally in suitable cases of chronic catarrhal deafness. The very satisfactory results of the experiment have been reported from time to time (*Medical Record*, June 1, 1901; *Annals of Otology, Rhinology and Laryngology*, February, 1902). Scores of cases which have obstinately resisted every other form of treatment have slowly, but gradually progressed under the application of superheated air to the tympanum until marked improvement in hearing and relief of tinnitus has resulted. It is doubtful whether one in the whole number treated now by this method has perfect hearing, but every patient discharged (since contra-indications have been determined and closely observed) has been perfectly satisfied with the result.

In the early experiments the heat was secured from a crude room heater with a funnel top and a canvas sleeve air conductor, but this was soon displaced by a compressed air heater which drives the superheated air against the tympanum with as much or as little force as may be desired. A temperature varying from 250 degrees to 400 degrees F. is thus applied and is easily borne if the maximum temperature is slowly approached. Of course, moist heat could never be applied at such high temperatures or to as much advantage. It is unfortunately true that some of the compressed air heaters now on the market are mere toys and fail utterly to yield a curative temperature, or yielding it furnish it at an improper rate of elevation so that a curative temperature cannot be tolerated by the patient. The writer employs an electric compressed air heater which acquires its maximum temperature from a given air pressure in ten minutes and finds the rate of elevation just about right. If the temperature is then well borne it is raised still higher at the ear tip by gradually increasing the air pressure. Ordinarily the treatment lasts about 15 minutes or until the limit of toleration is reached. No fixed temperature can be employed in all cases, the operator being governed entirely by the individual toleration of the patient under treatment, the toleration not only varying widely in different patients, but in opposite ears of the same patients even under precisely similar conditions.

It is necessary, of course, that the ear under treatment shall be clean and packed with dry gauze (two thicknesses) to prevent scalding from the boiling of any moisture present, and

when it is done there is absolutely no danger of burning.

It is only by taking this precaution that high temperature can be employed without burning. The benefit derived from applications of dry heat is directly proportional to the degree of heat applied and high temperatures can neither be tolerated or safely applied in the presence of any accumulated moisture. It has been pretty well demonstrated that intense dry heat stimulates the circulation through the blood supply on the posterior side of the manubrium, causing absorption of the articular deposits; removing atrophy and relieving rigidity of the tensor tympani. The ossicles lie so near the surface that they receive the full benefit of heat applied to the tympanum and adhesion between portions of the ossicular chain and the adjoining bony walls of the middle ear are readily removed.

Naturally, much better results are secured in the same period of time in hypertrophic cases than in those characterized by hyperplasia; but many cases of the latter type, which would ordinarily have been regarded as hopeless, have gradually acquired marked improvement under this treatment. Occasionally slight vertigo or headache results from treatment, but is very transient in character and requires no treatment. Vertigo may become serious if heat be applied to both ears on the same day and it is, therefore, unwise to make such applications. The writer regards as contra-indications to this treatment, arteriosclerosis, serous effusions into the tympanum and perforations of the tympanum. As an exclusive treatment it is rarely of much value in serious cases. When carefully employed it is absolutely safe unless contra-indicated. It is of little value in old subjects who have extensive labyrinthine involvement. Superheated air (especially when compressed) acts more favorably upon the ossicular chain than upon many other articulations because of the exceptional proximity of the entire bony structure to the surface.

Treatments are best given three times a week for from three to twelve months. The writer sometimes gives daily treatments for the first month, but if any additional dulness of hearing is observed as a result of treatment the intervals are immediately lengthened. A good routine practice consists of inflating the Eustachian tube and middle ear with a warm vapor from a good nebulizer at the conclusion of every superheated-air treatment. The superheated compressed-air treatment, when indicated and judiciously employed, in conjunction with such other measures as may be indicated, will give results which would be utterly unattainable without its aid.

Obstinate cases of this disease usually call for a combination of agencies, each of which has its own indications, but good judgment is often necessary to avoid meddlesome therapeutics.

Every case must be treated as a whole; every indication must be met. All abnormal conditions of the nasopharynx must be properly treated. The Eustachian tube and middle ear must be care-

fully attended to. Antiseptic washes must be used often enough to maintain a clean mucous membrane; different cases frequently requiring very different washes.

The selected irrigant in any case should be capable of dissolving the secretion to be removed, readily soluble in water, non-irritating to mucous membranes and sensitive surfaces and possess the power of penetrating surface tissues. It is an advantage if it is chemically compatible with suitable antiseptics. The sulphates of sodium, potassium, magnesium and ammonium fulfil these requirements well in cases characterized by viscid or inspissated, "crusty" secretion, provided the solutions are not stronger than two per cent. Considerable quantities of the selected irrigant should be used each time, from six to eight ounces being usually required to thoroughly cleanse the nasopharynx.

Antiseptic solutions can sometimes be employed to better advantage after thorough cleansing has been accomplished. The temperature of an irrigating solution is of some importance and should be about equal to body temperature.

In office practice some good device like the Terry electric solution-heater affords an easy and quick method of bringing the selected solution to the desired temperature for application. Cold vapors should never be employed in catarrhal cases and especially after applying high temperatures to the tympanum. Warm vapors are absolutely safe, if not too hot, and are of far greater value in treating these cases.

Of course, very high temperatures cannot be used on mucous membranes, owing to the fact that they cannot be kept dry during treatment and a temperature of 300° to 400° F. would cause scalding, hence this can be in no sense a substitute for the superheated air applied directly to the tympanum through the auditory canal, but warm medicated vapor for Eustachian and intratympanic inflation has a large field of its own, which no other agency can fill.

THE CLINICAL VALUE OF BLOOD PRESSURE.

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THE observation of the pulse by the finger touch has been for centuries a valuable aid to the practitioner, but the knowledge acquired has never been scientifically accurate. The terms hard, soft, high and low tension, high and low pressure, are not definite, and do not admit of exact records for comparison. Like the other senses, touch has its limitations, and the terms used are relative though of clinical value. Dr. Oliver, of London, has repeatedly proved, by the conjoint use of the hemodynamometer and the arteriometer, that the finger touch is very frequently at fault in estimating the arterial blood pressure; and that the cause of this tactile illusion is a reduction in the caliber of the radial artery; the finger failing

to realize a rise in the arterial blood pressure when the artery is contracted below normal size; he states that the unaided finger can only estimate the blood pressure in a general way when the caliber of the artery remains normal or is enlarged. He has found radial arteries of little more than half their normal caliber, having a mean pressure of 160 to 200 mm. Hg., which were passed by well-trained fingers as not presenting an exceptionally high blood-pressure.

Many instruments have been devised for the observation of the pulse and of the blood-pressure, but the usefulness of most of them has been confined to the physiological laboratory. The sphygmograph has largely passed into disuse for clinical purposes on account of the difficulty of its application. The weak point appears to be that the transmitter is solid, and also it is almost impossible to fix the pressure of the pad on the artery so that the pressure exerted by the pad is equal to the pressure in the artery. An instrument so arranged to insure the tracing being taken at the proper pressure, would give more certain and more valuable results. Several instruments have been devised for the purpose of obtaining accurate observations of blood-pressure for clinical purposes. Roy's oil sphygmometer was probably the first instrument which promised success; it was followed by those of von Basch, Riva-Rocci, Gärtner and others; but they only measured the systolic or maximum pressure, the arterial pressure or mean pressure not being obtainable. Dr. Oliver invented an instrument by which not only was the maximum and mean arterial pressure obtainable, but also the venous pressure. The manipulation of this instrument requires considerable skill and practice, so much so that the personal equation is a disturbing factor in comparing results obtained by different observers. Drs. Hill and Bernard have introduced an instrument which is exact and practically eliminates the personal equation in the observations.

The instrument consists of a rubber bag connected with a dial graduated in mm. Hg. The bag is securely and tightly fastened around the arm or leg of the patient, and air pumped into the bag till the pressure is sufficient to close the artery; the point of closure being indicated by the cessation of the oscillations of the needle of the aneroid. To obtain the mean pressure, the air is allowed to escape from the bag until the maximum oscillation of the needle occurs, at which point the pressure in the artery and in the bag are the same. It requires very little practice to become familiar with the instrument.

There are two pressures in the arterial system which can be estimated by this instrument, viz., the maximum or force of the systole, and the mean or the pressure in the artery. As the arteries collapse if empty, it is evident that the force required to obliterate them when full will represent the force of the blood driven into them by the heart. There would appear to be some variation caused by the pressure required to overcome the resistance of the tissues surround-

ing the artery, but in practice, if the arm is extended and the bag and collar put on as tight as possible, and the arm flexed, there is very little, if any, falsification of the results from this general cause.

Experiments on animals have proven that the pressure in the left ventricle and that registered by the instrument are the same.

If the artery were a blind tube with no outlets the pressure in it would be equal to the heart force, and the heart would be arrested; but there is during the whole cardiac cycle a continuous outflow of blood through the arterioles which causes the pressure in the artery to be about 25 per cent. less than the systolic pressure. As the aortic valve closes immediately after systole, the diastole of the heart can have no effect upon the pressure in the artery, provided the aortic valve is intact. The difference between the maximum pressure and the mean pressure is, therefore, due to the blood flowing out through the arterioles.

It has been shown that the capillary pressure is only one-fourth of the arterial pressure, consequently we would expect to find that the difference between the maximum pressure and mean pressure would be 25 per cent.

I made a number of observations on healthy individuals, taking the maximum and mean blood pressure in the recumbent position at 11.30 A.M., and found a mean pressure varying from 100 to 120 mm. Hg., and a maximum pressure from 140 to 160 mm. Hg., taking the average $\frac{\text{mean pressure } 109}{\text{maximum pressure } 150} = 0.73$, or in other words, the mean pressure is 73 per cent. of the maximum pressure; the capillary pressure will therefore be 27 per cent.

That the point of greatest oscillation represents the pressure in the artery has been proven by experiments on animals; with a manometer inserted in the carotid and the instrument on a limb, it was found that the point of greatest oscillation corresponded with the pressure recorded by the manometer.

The oscillations of the needle should theoretically represent the fall of pressure in the artery during closure of the aortic valve; I have found this loss of pressure to be equal to about 4 mm.; I have nearly always found aortic regurgitation or dilatation of the left heart if the fall in pressure was over 6 mm. Hg.

By this instrument the maximum or systolic pressure, the mean or arterial pressure, the loss of pressure in the artery during the cardiac cycle representing the flow of blood into the capillaries and by difference the capillary pressure can be observed.

It must be noted that the above observations were made with the patient in the recumbent position with the arm at the level of the heart; the patient was kept in this position for some time before the observations were taken, in order to do away with any increase of pressure from physical or mental activity. The average pulse rate at the

time the observations were made was 63 per minute.

The clonic contractions of the heart, and the tonic contractions of the arterioles are the determinates of the arterial pressure; if the arterioles dilate, a larger amount of blood flows from the artery and the mean pressure falls; if the arterioles contract, less blood flows from the artery and the mean pressure in the artery rises. There is a compensatory action between the arterioles and the heart; when the former contract there is a back pressure on the ventricle, while at the same time more blood is forced through the coronary arteries, and the force of the heart systole is increased. Should the contraction of the arterioles become considerable, the back pressure on the heart may be so great as to prevent the left ventricle from emptying itself, which will produce dilatation. If the arterioles are dilated the pressure in the artery is reduced, as in exercise the heart, relieved of the back pressure, empties itself more easily and beats quicker; more blood passes to the venous side of the circulation, the arterioles regulating the supply of the blood to the venous system, and there is a greater bulk of blood passing through the body.

Under normal conditions there is a postural variation in blood-pressure. On taking the erect position the mean blood pressure rises owing to a contraction of the arterioles in the body; if this compensatory contraction did not take place, on taking the erect position the blood would gravitate to the abdomen and syncope ensue. When fatigue is so great as to become a pathological condition, the postural variations of blood-pressure are reversed, viz., on taking the erect from the recumbent position the blood-pressure falls 10 to 20 mm. Hg. In neurasthenia and analogous conditions I have found that the reversed postural variations of blood pressure exist, so that it would seem that at least one of the pathological conditions of neurasthenia is a failure of the vasoconstrictor nerves to react. In three cases of neurasthenia I found the following conditions:

Horizontal				Sitting.			
	Pulse	Mean P.	Max. P.	Pulse	Mean P.	Max. P.	
(1)	96	148	170	105	134	160	
(2)	78	150	180	84	142	174	
(3)	94	132	146	110	124	130	
Standing.							
	Pulse	Mean P.	Max. P.				
(1)	110	128	145				
(2)	126	125	155				
(3)*	128	114	124				

Probably in no condition is the observation of the mean blood-pressure and its relation to the maximum of more service than in the early diagnosis of Bright's disease, when the headaches, fainting spells, etc., begin, and even before the apex beat has moved to the left, a very high mean blood-pressure will be found which will at once suggest Bright's disease; it is probable that the albuminuria does not occur until the high

* Case 3 had a very weak and irritable heart.

arterial pressure has reacted through the left ventricle and caused venous congestion.

The action of the bromides on the blood-pressure is interesting. I had the opportunity to take the blood-pressure of an epileptic for eleven weeks, during part of which time he took no drugs while for four weeks he took 20 grains of bromide three times a day. During the period when he was taking no drugs the blood-pressures were usually a little above normal; but about four or five hours before a spasm the blood-pressure began to rise; on one occasion he had a spasm while the instrument was on his arm when his mean pressure rose to 227 and the maximum was above 250 mm. Hg. (The instrument only registers up to 250.) Under the bromides, both his mean and maximum pressure steadily fell, and for three weeks he had no spasm; at that time his mean pressure had fallen to 93 mm. Hg., and his maximum pressure to 135 mm. Hg. at which point he had several very severe attacks, and was confined to his room. During the bromide period his pulse rate fell from 86 to 66 per minute. This would seem to show that the action of bromides was on the vasomotor nerves, or upon the heart muscle.

In melancholia simplex I found that there was great contraction, the patients having a high mean and a low maximum pressure. In six cases the factor (mean and maximum pressure) averaged 0.94 instead of the normal 0.73, showing that the capillary circulation had a low pressure.

In mania it was difficult to obtain an observation without exciting the patient; but in a few cases observed I found both the mean and the maximum pressure very high, the maximum being high in proportion to the mean; the factor, mean and maximum pressure, being about 0.64 showing that the circulation was rapid, and that a very large volume of blood was passing through the system. In mania with depression there is a high mean and high maximum pressure; but the ratio is about normal.

In locomotor ataxia and paresis the mean blood pressure is high. In three cases of locomotor ataxia I found:

	Pulse	Mean P.	Max. P.	Factor.
(1)	95	180 mm. Hg.	220 mm. Hg.	0.82
(2)	86	172 mm. Hg.	210 mm. Hg.	0.81
(3)	92	188 mm. Hg.	220 mm. Hg.	0.88

In paresis the results were about the same except in one case where the patient was melancholic when the pressures were about normal.

In arterial sclerosis, owing to the hardness of the vessel walls, the instrument gives much too high results for the maximum pressure, but the mean pressure is probably correctly registered and is, as would be expected, high.

There is a condition of nervousness which is often met with giving a history of long-continued worry, excitement, mental strain or suppression of the emotions, in which the maximum and minimum blood-pressures are very high but in proportion, the factor being about 0.73, and in which

there is apparently no dilatation or hypertrophy of the left heart, but a distinct dilatation of the right heart with venous congestion, the proportion of venous blood to arterial blood being above normal with a dry, harsh skin and evident defective capillary circulation. In such cases the continuous mental strain, acting as all emotions do upon the circulation, contracting the vessels, has produced a spasmodic contraction of the arteriolar muscle. As these cases improve under treatment the pressure returns to normal.

From the clinical standpoint, the observation of the maximum and minimum blood-pressures and their relation to one another is of immense advantage, not only as an indication for treatment but also as a measurement of progress.

The treatment of the condition of the mean pressure is generally far from satisfactory, none of the vasodilators of the pharmacopœia giving satisfaction; amyl nitrite is too fugitive to be of any value except in emergencies; nitroglycerin, though more lasting in its effects, has the defect that it accelerates the heart, and further, I have never been able to reduce the pressure more than 10 mm. Hg. with doses of gr. $\frac{1}{50}$, the effect passing off in about three hours; erythrol tetranitrate is not more satisfactory except that, owing to its insolubility, its effect will last six hours. The nitrates and nitrites of the alkalis are not reliable and in no way superior to nitric acid. The ideal drug in these cases should dilate the arterioles and not increase the heart beat, or better still, slow and strengthen it.

The suprarenal extract given internally does not fulfil these conditions perfectly; it undoubtedly slows the heart and increases the force in cases where the maximum pressure is low, and it will also increase the mean pressure, but it fails to increase the capillary circulation.

The thyroid reduces the mean blood-pressure by dilating the arterioles, filling up the capillaries, changing the dry, harsh, white skin, to a moist, soft, pink, normal condition, and, if pushed, will produce severe diaphoresis which none of the vasodilators referred to above will do; but it weakens and accelerates the heart, producing a condition of mental depression if pushed, which in neurotic patients is very undesirable. By the administration of arsenous acid and strychnine in very small doses the heart weakness and depression are somewhat relieved. If administered over a long period of time in small doses the thyroid gives good results in many cases, but as an emergency drug, where the relief of the patient is urgent, it fails.

The Shott bath treatment has given the best results. After immersion in the bath, the blood-pressure falls, the capillary circulation is improved, cyanosis of the extremities disappears, the volume of respiration is increased and the heart rate is decreased. How the simple bath of sodium and calcium chloride produces these results is not very clear. The most necessary factor in getting good results from this treatment is the temperature of the bath which should never be

lower than 96° F., and never above 101° F. If the temperature exceeds these limits the peripheral vessels are contracted and the object of the bath is frustrated. The salts in the bath act in the same manner as the carbon dioxide of the later series of baths by irritating the skin and thereby stimulating the capillary circulation.

As the abdomen is the great reservoir of the blood, it has been argued that the pressure of the water, augmented by the increased specific gravity, on the abdomen, increased the bulk of blood in circulation. In the experiments on animals it was shown that if held for a certain length of time in the vertical position, the blood would gravitate to the abdomen, the animal becoming comatose; but by simply immersing it in water, still in the vertical position, it would recover owing to the pressure of the water. But if this extra pressure were the cause of the phenomena of the Shott baths, simple pressure on the abdomen without the bath ought to produce the same result, which it does not.

The arterioles are the regulators of the blood supply to the capillaries, and consequently to the venous system; when they contract, less blood passes through them and consequently the capillary circulation is decreased. The contraction of the arterioles increases the blood pressure, which causes increased action of the heart, perhaps by forcing more blood through the coronary arteries. If the arteriolar contractions continue there is a damming back of the blood acting through the left ventricle on the pulmonary circulation, thence to the right heart producing an increase of the proportion of venous to arterial blood and a stagnation which must materially reduce the bulk of circulating blood. In such a condition a vasodilator would presumably remedy the condition which arises primarily from arteriolar contraction. If, however, the contraction was in the capillaries the vasodilating drug would have little or no effect.

The very large capacity of the capillaries causes any general contraction to have far-reaching effects on the circulation; though no nerves have been demonstrated in the capillaries it is evident that they have some means of regulating the amount of blood passing through them as on observing the capillary circulation in the mesentery the capillaries will be seen to obliterate and then to refill. It seems to me that many of these nervous conditions with increased mean blood-pressure are due to an obliteration of the capillary circulation which acts upon the circulation in the same way as arteriolar contraction. That the capillary circulation is affected by the emotions is shown by the blanching in fear, fatigue, etc., while Leonard Hill has shown how sensitive the blood-pressure is to the emotions, even working out a problem in arithmetic raising the blood-pressure 10 or more mm. Hg. The proper distribution of the blood to the various organs is probably of as great importance as the quality, and any condition which disturbs the distribution will be far-reaching in its effects.

TYING AND CARE OF THE UMBILICAL CORD.

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THIS interesting and important subject seems to have been entirely overlooked in the numerous medical papers; and to bring before the profession the necessity of the management of this much-neglected subject this paper is submitted.

The tying of the cord, judging from experience, is performed incorrectly by half of the profession, the general technic being as follows: a ligature generally of silk or catgut, which is sterilized (?) is taken, and the cord is tied with an ordinary double knot, tying same by grasping ends of said ligature and pulling in opposite directions as hard as possible, causing great tension to be brought to bear not only on the knot, but on ligature and cord itself. Very often the ligature breaks, with the result of a defect in it and we then have a laceration of the cord. We try the same method again and probably succeed. On the other hand, silk cuts tissue when great tension is employed and we therefore do further damage. It is the practice of the author, and I think in all maternity hospitals, to use tape which is about one-sixth to one-eighth of an inch wide. This is cut into strips seven to eight inches long, giving plenty of room for tying. These strips are then put into a test-tube the end being plugged with cotton and over this a piece of linen is tied. This is then subjected to dry heat for thirty minutes. We then have a sterile and serviceable ligature. The tying should be performed by placing the first knot in place over cord, then drawing snugly, put thumbs in apposition, then, using the second joints of thumbs as a fulcrum, separate tips of thumbs holding the ligature. In this way pressure is brought to bear directly on the knot itself and the chances of breaking of the tape and of lacerating the cord is minimized. The tape is firm and does not cut the cord substances. There will, therefore, be no hemorrhage, which cannot be said when silk is used. The author has seen over 500 cases in which this method was employed, and has yet to see either hemorrhage or laceration of cord; and in 35 cases in which silk was used has seen 5 cases of laceration and as many hemorrhages. After the cord is tied take warm water and a little soap and wash the abdomen around cord gently, cleaning the vernix off, then dry thoroughly. Take a piece of sterile gauze four by four inches doubled and put in center of same a slit about one-half to one inch long. Through this pull the cord by the strings of the ligature, push gauze down onto the abdomen and place the cord on the gauze with it pointing upward; now fold the piece of gauze below up over cord, the sides over this and you have the cord enveloped in gauze and perfectly dry. Now cut the strings of your tape, you have not touched cord at all and as the cord is said to be sterile you have in no way infected it.

As regards the dressings to be used, powders, etc.; judging from the author's experience nothing but plain sterile gauze is the best dressing. There is no very serious objection, however, to powders, except that they leave a residue which hardens on the cord and on and in the umbilicus, necessitating cleaning of same, generally by the mother or some kind friend of the family, no attempt of asepsis being made and force in the majority of cases being used. The danger here is twofold, viz., injury of the umbilicus and infection. Ointments are worse, they leave a filthy surface and are splendid media for germs; alcohol used by many is good for only one reason and that is its hydroscopic power, but this is more than counterbalanced by its defects, which are first vesication and secondly, irritation. Alcohol is a vesicant and a great irritant to the delicate skin of the infant, setting up in quite a few a dermatitis which will necessitate further treatment. Again, powders, ointments and alcohol will not cause the falling off of the cord any sooner than plain dry gauze and you do not run the risk of infection, as with the plain dry dressing you can leave the dressing on until the cord falls off, and one may then be sure that there is a clean surface.

On summarizing, we have lessened chances for infection, and a falling off of the cord as soon, if not sooner, than by other dressings, against an accumulation of hardened masses of powder and of salves, or a dermatitis, and a greater liability to infection. From this summary the reader is left to choose which will be of advantage not only to his patient but to himself.

THE GENERAL PRACTITIONER AND HIS RELATION TO EARLY SURGICAL OPERATIONS.*

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IN these days of ever-increasing specialism, it is not to be expected that the general practitioner or internist should be perfectly informed as to the refinements and minute developments in each special branch of practice. There are many points, however, in which he comes into close touch with them all, and in which his judgment may be of the highest importance to the welfare of the patient. There are so many patients applying to the internist at first for relief, who require at an early period expert surgical intervention, that it has seemed to me that the subject of the relation of the general practitioner to early surgical operations, was well worthy of a brief consideration by this section. I will premise all I have to say by the remark that all the surgical work referred to is supposed to be in thoroughly competent hands. It is always too early for unskilled or incompetent persons to undertake work requiring the highest technical skill, knowledge or experience, and such operations in such hands serve only to bring disaster to the

patient and opprobrium upon surgery. Fools should not be allowed to rush in where "angels fear to tread," whatever may be their license or motives for so doing. But all of this, while an intensely practical matter, indeed a matter having to do deeply with medical education and medical ethics, has nothing to do with the scientific aspect of the subject under consideration. It is constantly impressed upon us by every-day experience that a very large number of cases are rendered hopeless or fail to be benefited as much as might be, by failure to secure surgical intervention at an early period. Valuable time is often frittered away by futile attempts to apply internal remedies to conditions requiring early treatment by the surgeon in order to secure favorable results. Here the general practitioner is so often the arbiter of the fate of the patient, for it is to him that such patients first apply for relief and it is only through his advice and aid that surgical aid is likely to be had. A few of the instances in which it should be his duty to promote the procuring of such early aid and it will be of interest and importance to consider.

The first condition to be considered in which a surgeon should be called early is that of appendicitis, or cases in which a diagnosis of appendicitis is probable. In my mind it is beyond question that appendicitis has been proven both clinically and pathologically to be essentially a surgical disease, and that it is dealt with by surgical methods with better results, both immediate and remote, than by purely medical management. This being the case it is certainly unjust to the patient and to the surgeon to delay associating him in the treatment to a time which might not be best or most desirable for operation. An early diagnosis and early operation, I believe, is supported by the consensus of opinion of those having the widest experience in the treatment of this disease. An early diagnosis is usually not difficult. A localized peritonitis in the right iliac region in males and children is in the vast majority of cases of appendiceal origin. In women the differentiation from a cause originating in the female pelvic organs is usually not hard to make by the usual methods of examination of those parts. The futility of medical treatment in a large number of cases is shown by the disastrous termination of many of them apparently of mild type. There may be at first severe pain soon becoming bearable, a temperature not exceeding 101.5° F. and pulse 100, there may be no inflammatory mass and everything may point to an early recovery, when on the third or fourth day a perforation may occur from gangrenous appendix and the patient soon collapses from septic peritonitis. As Nothnagel has well said, unless one operates early, by principle, in every case, such results cannot be avoided occasionally. The rule laid down by Hemmeter¹ in his work on "Diseases of the Intestines," should, therefore, be followed wherever possible. He says "Let the practitioner associate an experienced surgeon with himself in every case of appendicitis, even

* Read before Illinois State Medical Society, April 29, 1903.

the simplest and mildest." In intestinal occlusion the same rule holds, so that no valuable time should be lost in attempting a cure by purely medical methods. Favorable results are much more likely to follow early, than late operations. According to statistics compiled by Naunyn of the results of 288 cases of intestinal occlusion treated by surgical intervention, when the operation took place during the first forty-eight hours the recoveries were 75 per cent. After the third day the results grew less favorable, sinking to 35 per cent.

Nothnagel, Boas and Naunyn all agree that when the character of the occlusion can be well made out, medical treatment should not be continued longer than forty-eight hours. Hemmeter thinks that "the obscure cases running an intensely acute and rapid course, should be *operated on at once*. These cases usually being so very fatal without operation that every life saved in this manner is a gain and a gift, pure and simple." Acute cholecystitis not rapidly subsiding is another condition in which surgical advice and frequently early surgical operation is indicated. Kehr,² whose experience in the surgery of cholelithiasis has been greater than that of any living surgeon, emphasizes the importance of operation before the pathological changes in the gall-bladder have not advanced too far, and while the gall-stones are still in the gall-bladder, not having moved into the deeper ducts. He says "*the slight dangers of early operation stand in no sort of a relation with the great dangers of the disease itself*. This conviction ought more and more to gain strength, and not only in medical circles but even in the lay public to gain a firm footing. It is very lamentable that the scientific practitioner has scarcely any opportunity of influencing the wider circles of the people, for just as soon as he opens his mouth in any sort of a society not a medical one, he is exposed—often, indeed, with reason—to the charge of advertising. The natural doctor and the empiric, however, scatter the poison of their teaching ever further, and we are obliged to connive at stupidity and folly gaining always more and more."

The cases which may be safely left to the internist are cases with acute obstruction of the common duct proceeding normally, and those with frequent colics each time attended with the passage of stones. But cases of seropurulent cholecystitis and pericholecystitis with adhesions, and cases with chronic obstruction of the common or cystic ducts, should certainly be cases for skilled surgical interference as early as possible. According to Kehr's experience, the mortality of these operations is less than 1 per cent., while not over 90 per cent. of the cases show even an apparent cure under medical treatment.

In perforation of a typhoid ulcer in the course of typhoid fever, the only hope of saving the life of the patient lies in the earliest possible operation. After the shock of the perforation is over, every hour the infection of the peritoneum becomes more intense, and as Keen says "*if*

the operation is not done within about twenty-four hours after its occurrence there is practically no hope of recovery." Early diagnosis and prompt operation is the keynote to any success here. As J. B. Murphy,³ of Chicago, has recently said in his report of a case of typhoid perforation operated on by him last November with favorable results, "In the past the diagnosis of perforation was based on the combination of symptoms included under the term collapse, which he believed to occur a few hours after the perforation took place. At present the diagnosis of acute infectious perforative peritonitis is based upon the symptoms of pain, nausea, and vomiting, localized tenderness, circumscribed flatness on piano percussion, and hyperleucocytosis, in the order named."

An operation should not be postponed until collapse symptoms appear. In a contribution of "Surgical Features of Typhoid Fever," in the last volume of Johns Hopkins Hospital Reports,⁴ the authors, McCrae and Mitchell, say that it is the practice in that hospital to have a surgeon see all cases of typhoid fever presenting any abdominal features, following a suggestion previously made by Osler that the earliest symptoms of perforative cases should be studied and watched by the surgical colleague as well as the physician. Out of seven cases so studied and operated on in the hospital within the last two years, two have recovered. In one of the cases with favorable result, the operation was made within seven hours after the first appearance of localized abdominal pain and rigidity, but before the appearance of any marked distention. In the second favorable case, the operation was made twelve hours after the first appearance of abdominal pain and rigidity, and about four hours after distention first appeared.

Cases presenting indications of extra-uterine pregnancy should have surgical advice, and often surgical operation at a very early period, and as these cases, as well as the other types previously considered, first come into the hands of the general practitioner, upon his judgment frequently depends the fate of the patient. Whenever a woman, having passed one or more menstrual periods and supposed to be pregnant, is suddenly seized with severe pain in the lower abdomen, feels faint and develops symptoms of shock, as pallor, feeble pulse, clammy sweat, cold extremities, etc., it is probable that she is suffering from hemorrhage from rupture of the extra-uterine gestation sac. It goes without saying that a competent surgeon cannot see her too soon, and neither expectancy or stimulating medication should be relied on. These are cases where early or immediate operations are frequently life saving. Early operative interference is indicated in septic infection of the uterine appendages. In an address on this subject, Henrotin⁵ well contrasts the two courses which may be pursued. The method of delay, in which he says "you see your patient regularly, hypnotize her to the best of your ability, amuse her with poultices and hot

douches, give her quinine as an antipyretic if her temperature goes up, or quinine as a tonic if it goes down, and tell her to have patience, and if she does not recover, when her tubes and ovaries are ready and ripe, yourself or one of your friends will remove them." Or, as early as you find an exudative mass against the uterus, and the organ fixed, incise the posterior vaginal fornix and drain the affected seat of the trouble.

While not necessary to the saving of life, the general practitioner should advise more often and more decidedly than he does the early operation for the radical cure of hernia. When the almost entire absence of mortality of the operation in competent hands is considered, and the result in removing completely what is otherwise a most distressing disability, the only wonder is that it is not advised as a matter of routine in all patients capable of tolerating any surgical interference, between the ages of five and sixty years. This has been my invariable practice for several years, and the results have been uniformly gratifying. Three years ago the late lamented Prof. Christian Fenger performed the Baßini operation for me, for the cure of a hernia acquired by me one week previous, and the result has been a permanent cure. The percentage of recurrences in operations properly done is extremely small. I know of no surgical procedure giving more satisfactory results, and its early performance should be much more common.

Accumulations of fluid in the pleural cavity should be removed promptly by aspiration under aseptic precautions, and such patients not subjected to the prolonged disability produced by waiting for results from internal medication. Delafeld,⁶ in a recent article on "The Treatment of Pleurisy with Effusion" details 200 cases treated in his service in Roosevelt Hospital from 1886 to 1901, all of which were aspirated. There was infection in no case and the patient usually made complete recovery within two weeks. In private practice his results have been still better, a number of them being entirely well within a week, and none of them sick longer than two weeks. With such results as these by aspiration, how unnecessary seem the long delays incident to courses of medical treatment, and reserving aspiration as a last resort for effusions which seem to menace life. The experience of Dr. E. Fletcher Ingals⁷ is that where aspiration is done early in empyema, we may expect from 95 to 98 per cent. of recoveries. Early aspiration is to be advocated in effusions of any size into the pericardium. I have seen more than one patient die where this was refused, that I am confident might have been saved by its timely performance.

Carcinoma affecting certain portions of the body is only amenable to early operation following early diagnosis, this being particularly true of the mammary gland, the uterus and the rectum. The recurrences which follow later operations are disheartening to the surgeon, and only tend to lessen the confidence of the people in surgical art. In his monograph on "Diseases of the

Breast" Bryant⁸ says that the only hope of cure lies in early diagnosis and radical removal. "Waiting till symptoms develop" means waiting till all hope of cure is gone, he thinks, and Senn⁹ in his classical work on "Tumors" says: "The writer is confident that when the public has become educated in reference to the necessity of early operations, and the profession recognizes the importance of carrying the incisions far beyond the palpable tumor and the infected glands, the percentage of permanent recoveries will be increased greatly." In this view all surgeons heartily concur, and the duty of the general practitioner is most plain. As the adviser of his clientele on matters pertaining to their health, he should make known to them the importance of seeking professional advice at once in any abnormality or induration occurring in the mammary gland in women above forty years of age. The importance of this can be still more fully realized when we consider that 85 per cent. of all growths appearing here are malignant in character. Only through this means of educating the public will these cases be brought to the attention of the surgeon when his aid will be most effective.

Rectal troubles causing obstipation should very early be subjected to a thorough rectal examination. If this were done habitually very few cases of carcinoma of the rectum would be permitted to go to the inoperable stage. As it is, most of the cases, when referred to the specialist, have passed beyond the period when surgical operation would be justifiable. Hemmeter says that 90 per cent. of the cases of malignant disease that have come under his observation, have brought the ready-made diagnosis of bleeding piles or fistula. In carcinoma of the uterus the same complaint is to be made. Hitherto, statistics relating to ultimate recovery have been most discouraging. At the Ninth German Congress of Gynecology, May 29 to 31, 1900, Prof. Freund said he was able to report only two cases of cancer of the uterus permanently cured by surgical operation in twenty-three years' experience. He learned by inquiry in the various clinics of Germany that after abdominal extirpation with removal of the larger portion of the parametrium and glands that the mortality is 24.5 per cent., and recurrences within the first year 46.6 per cent. Baldy¹⁰ in a paper read before the Gynecological Section of the American Medical Association in June, 1901, expresses the view that the results achieved by surgery in this disease are "surgery's disgrace." He estimates that the number of permanent cures following operation is less than 5 per cent. These bad results he attributes to lack of proper attempt to discover these cases early, and a disinclination to advise immediate operation when they are discovered, under the misapprehension that a later operation saves a large percentage of cases. He says that when the family practitioner realizes that early operation gives the only hope of cure, he will watch his female clientele more closely with this end in view. Hemorrhage with possibly beginning loss of flesh and strength is, he thinks,

the diagnostic sheet anchor in the early stages. Bleeding begins very early—early enough to give warning of what is coming. A woman who has passed the menopause, and a year or two, or possibly several years later has a show of blood from the genitalia, almost invariably has uterine cancer. He would be suspicious of any hemorrhages occurring without reasonable cause. These at any time may be significant, and call for careful examination. The symptoms may be explained by polyp erosion, or a benign ulceration, but most frequently will cancer be found so early that the pathologist will be uncertain in his diagnosis. The earliest possible operation is the only way of making a better showing in our number of cures, and for this opportunity the surgeon must depend on the wisdom of the family practitioner in making an early diagnosis and advising immediate operation.

Dr. G. Frank Lydston¹¹ has recently called attention to the fact that the profession at large should be impressed with certain facts in regard to prostatic enlargement. He called attention to the fact that while the use of the catheter may for the time relieve the symptoms of prostatic obstruction, that the longevity of patients after the habitual use of the catheter has been once begun, is, on the average, about five years, and those five years, years of suffering. It is obvious, therefore, that, when the enlargement and obstruction have reached this degree, the case must be referred to the genito-urinary surgeon. An early operation performed before the onset of bladder and renal complications gives a favorable prognosis, and should always be advised at this time. The operation done at a later period, as I know from observation of several cases in which prostatectomy has been done as a last resort, after the obstruction had become so great that a catheter could no longer be used and the bladder and kidneys had become affected, is not satisfactory, and the results are only palliative.

A considerable number of conditions in which delayed operations are undesirable might be mentioned, but I will close with a few in which the family practitioner is the determining factor in bringing about early relief. One is the early removal of postnasal adenoid growth, in which delay is, in most instances, fraught with evil consequences, not only on the general health, mental development, and facial formation, but also from the danger of ear complications arising, and the greater seriousness of infectious diseases, such as scarlatina and diphtheria, in such subjects. Another condition in which timely interference is desirable is in acute purulent collection in the middle ear, in which an early incision of the tympanic membrane may prevent the extension of the disease to the labyrinth or meninges.

This list might be almost indefinitely extended, but enough has been said to show at how many points the general practitioner comes in contact with the surgeon and specialist, and to demonstrate the importance of his having carefully considered opinions regarding the pathology and

treatment of many affections which very early demand operative care.

BIBLIOGRAPHY.

1. "Diseases of the Intestines," Vol. II, Hemmeter.
2. "Gall-stone Disease," Hans Kehr.
3. *Journal American Medical Association*, April 11, 1903.
4. *Johns Hopkins Hospital Reports*, Vol. X, p. 385.
5. "The Cure of Septic Pelvic Disease in Women," F. Henriotin.
6. *American Gynecological and Obstetrical Journal*, June, 1896.
7. *American Journal of the Medical Sciences*, December, 1902.
8. "Prognosis and Treatment of Suppurative Pleurisy," E. F. Ingals, *Illinois Medical Journal*, 1902.
9. "Diseases of the Breast," Thomas Bryant.
10. "Pathology and Treatment of Tumors," N. Senn, M.D., Ph.D., L.L.D.
11. *American Medicine*, Vol. II, p. 169.
12. *Illinois Medical Journal*, March, 1903.

OTHER CAUSES THAN SYPHILIS FOR PARESIS.*

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OF PADUCAH, KY.

So much has been written on the subject of general paralysis of the insane, and yet we know so little of its pathology, I necessarily feel some timidity in presenting this paper, though the thoughts and experiences I relate have been worked out by mental struggles and energies extending over a period of six years, and I feel that these observations are worth repeating, at least for consideration and judgment.

One hundred years ago there was very little thought about this fatal form of mental trouble recognized as paresis; in fact, as late as thirty years ago, very little was written about it in medical literature. So it can now be considered a disease of modern civilization, especially confined to busy commercial and crowded cities. The increased percentage, as will be shown in the following statistics, and with it the recognized fatality of its termination, should attract the attention of the profession to active investigation. I was prompted to present these views from a consideration that the theory of paresis, being due to syphilis mainly, was a stumbling-block, liable to produce many blunders in the effort to discover some curative treatment of this form of mental disease, impeding and discouraging the profession in their hopeful search of a cure for paresis, and a possible preventive line of advice to susceptible cases.

My own observation has impressed me with a determination to search earnestly for the causes of this disease, and in this search I find that records from every hospital and asylum that has furnished statistics show it to be a disease of the prime of life, and is most prevalent at the age of forty-five years. All reports show the minimum susceptibility of age to be twenty-five years, increasing to the age of forty-five years and decreasing again to the age of sixty years, showing conclusively that it occurs at the period of greatest mental activity and is discouraging to the idea held by some of the profession that syphilis was the only cause for paresis, as the ages of twenty-five to thirty-five is the most common period for contracting syphilis.

* Read at the Fifty-third Annual Meeting of the American Medical Association, before the Section on Nervous Disease.

I do not doubt for a moment the statistics that there is a history of syphilis showing in a large percentage of cases of paresis, but think that it is the result of mental agony and worry that produces such mental strain as to cause the disease instead of the effect of syphilitic poison on the brain cells. As a proof of this I refer to the reports in medical literature of the countries of Japan and Egypt, where syphilis is very prevalent and paresis is scarcely known. This can be explained better by recognizing the fact that these people have very little mental worry and are low in the scale of modern civilization. The most convincing argument, however, to my mind is found in my own experience in the treatment and observation of this disease in the four years service as First Assistant at the Western Kentucky Asylum, where there was quite a large percentage of the colored race treated, and I did not find more than two per cent. of paretics, while among the whites it reached 18 per cent. Yet, we know that among the colored race syphilis is the most prevalent. This can be accounted for only by the absence of mental worry in the colored race.

These facts in addition to the rapidly increasing percentage of cases, as shown at the present, shows very conclusively that the theory of "No syphilis, no paresis" is not correct.

In referring to other causes than syphilis for paresis, I wish to be understood to mean the effect of the syphilitic poison on the brain cells or nervous system necessary to cause the organic changes produced by this disease necessary to result in paresis. I take it that the mental worry and distress of mind is independent of the disease, for you can satisfy the patient's mind of a permanent cure and assure him of no recurrence in the future, thereby saving him from being a paretic. In the same way you would stop a business man from the strain of his mental labors.

There is a recognized specific for syphilis and why should not paresis in its early stages, when due to it, yield to the constitutional treatment and result in recovery. This is not too much to expect of a specific treatment in any disease. Syphilis has existed for more than 1,000 years, and I am sure the old, acute observers would have discovered paresis had it existed to any great extent in the early ages, for the mortality in paresis is appalling in all the statistics examined by me. In Kraft-Ebing's Clinic, Dr. Asher and Dr. McDonald of Manhattan Hospital, and many others, only one case of recovery is recorded, and yet an increase of 75 per cent. in the last twenty years is shown. There must be other causes than syphilis for paresis. Out of 123 cases that have come under my care 87 had no history of syphilis, and, I am convinced, never had the disease.

The percentage of paresis as compared between male and female is ten to one and syphilis four to one. Mendel shows that in 1876 the percentage of paresis in agricultural districts of Schleswig-Holstein and others was $4\frac{1}{10}$ per cent. while in Berlin it was 26 per cent., an indication

that specialties in cities and the concentration of mental energies to one single vocation or single strain of thought should be classed as prevailing causes for this disease. I believe that statistics will show that one in every ten among the insane are paretics. If this is true I feel that a close inquiry as to the causes of paresis should be inaugurated by the profession and a careful scrutiny made of the failing health of a complaining business man among our patrons. The fact that it is fatal in the average cases in so short a period, one to two years and often earlier, should make us look to the sources that produce this fatal form of disease and search out the early symptoms with the information that we can gather as to the causes rendering an earlier diagnosis possible.

General cerebral strain, irregular eating and sleeping are the prevalent causes. This includes any mental worry that is kept secreted in the mind of the individual, such as brooding over financial failures or imaginary troubles that excite the mind and produce mental agony, as in the case of a man who has contracted syphilis that has listened to a lecture from a semimedical professor on the horrors of syphilis, producing in the individual all the mental horrors that the loathsome disease is associated with, making them become extremely observant of themselves; every little pimple about their body or face they attribute to the disease and think they will have facial manifestations of the disease to stamp them as syphilitics before the world, or decide in their minds, in case they marry, their children would be deformed and miserable beings. No wonder they terminate in paresis.

If such demagoguery in medicine could be stamped out and in its place a cheerful assurance of recovery from this disease, we would have fewer paretics. The medical profession is to blame, in a large degree, for these impressions on the laity. We find among the insane syphilitic manias that are not attributable to the influence of the disease on the constitution, but to the impression on the mind of the dreaded results of the disease. These cases only differ from the paretics in the temperament of the individual. If the former, one talks to every one and listens to him, and in the latter all the worry and agony of mind he keeps to himself and broods over it.

So I am persuaded that civilization brings in its wake an increased percentage of this disease.

Sexual excess and alcohol should not be omitted as prevalent causes of this disease, for I am sure they are recognized as important factors, and in the same way exaggerate the physiological functions of the brain. The central excitement of the sexual excesses produces a hyperemia of the brain. Alcohol does the same. So does any form of mental strain, a continuation of which frequently will produce paresis. We can take a remedy that will produce a hyperemic condition of the brain and produce paresis.

I have kept syphilis continually before me in this paper, because I think it stands at the head of mental worries and anxieties. The earnestness

with which I have gone into this paper can only be excused on the grounds of my having exerted every therapeutic means I possess to restore a few patients in whom I recognized the trouble early, but without result.

I am convinced that neurotic elements are important factors in the majority of cases. Next to this element comes the extremely sensitive, whose thoughts and acts are controlled in a great degree by the manners and acts of their friends, bringing upon them mental worry over imaginary wrongs, etc.

Actors, playwrights, inventors, commercial men and bookkeepers—all such individuals as have sensitive natures should be observed closely, for they are usually the victims of this disease. As an example, one of the most popular artists of the American stage, whose character is as pure as our ideal of modern womanhood, whose peace of mind was destroyed by a single breath of slander which sent her to an asylum. I call to mind one individual, a lawyer, who stood in the front rank of his profession, but the sensitiveness of his nature drove him from the bar, his sensitiveness increasing until his imagination kept him in an angry sea of torture, unbearable to a human being, which resulted in a complete giving way of his mental forces.

I am justified in concluding as follows:

1. That syphilis is present in a large percentage of the cases of paresis.

2. That it is certainly an important factor in disturbing the peace of mind in a susceptible and sensitive individual, whose pessimistic tendency is hereditary.

3. That in the majority of cases where syphilis is present, the mental worry and nervous strain keeps the brain in a state of hyperemia, causing loss of sleep and appetite that results in paresis, in the same way that any other mental worry will precipitate this disease in a susceptible individual.

4. The prevailing cause of paresis is an overworked mind in centralizing the mental energies without relaxation, whether worry over financial troubles, syphilis or a concentration of the mental forces in any single avenue of life.

MEDICAL PROGRESS.

HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

Hemoagglutination of Human Blood.—This phenomenon has been studied by U. BIFFI (Ann. d'Igiene Sper., fasc. 11, Year 1903) with the view of determining its applicability to clinical diagnosis and medical jurisprudence. His investigations were carried out with 140 individuals; 100 of whom were apparently healthy and 40 were afflicted with various diseases, such as malaria, pneumonia, typhoid, etc. He found that the blood or serum of a malarious subject had the power to agglutinate the blood of another malarious subject and also healthy blood; this finding coinciding with that of Lo Monaco, Panichi, Grixoni and others; but the author believes the phenomenon to be of little diagnostic value in latent malaria, from the fact that it is present

in many morbid conditions as well as in normal serums; a higher agglutinating power having been found by him in two normal specimens than in the serums of diseased conditions. Ascoli's statement that normal blood has the power—though feeble—to agglutinate its own cells was not confirmed in Biffi's work. On the other hand, he found that this power was present to a high degree in diseased conditions; for example, in a febrile malarial seizure, the first stage of pneumonia, etc. That the phenomenon of autoagglutination was in no way related to that of coagulation, was amply proven by the author's work. The relation between the agglutinating power of the serum and the agglutinability of the red cells was carefully studied by the writer; as a result of which investigations he lays down the general rule that in normal human blood, the agglutinating power of its serum is in inverse ratio to the agglutinability of its red cells. The greater the agglutinating power of the serum, the feebler the agglutinability of the cells. Pathological blood exhibits, as a rule, the same characteristics, but a certain number of exceptions to the rule were seen by the author in diseased conditions; and he found that the agglutinating power of the blood-serum in a given individual might be quite different from that of exudates and transudates occurring in the same individual. Biffi believes that the differences in agglutinating power of the serum in different individuals, as well as the difference in agglutinability of their red cells may be utilized in medical jurisprudence. For example, in a case in which it might be necessary to decide from which one of several individuals a blood spot is derived. This he believes may be determined in the following manner: By means of the usual technic applied to legal medicine, the red cells should be extracted from half of the blood spot and suspended in a small quantity of 0.85 per cent. NaCl. A drop of the blood-serum from the suspected individual should then be mixed with this emulsion of red cells. If the former show high agglutinating power toward the latter, the blood spot is not derived from that individual; for it has been shown that the serum of normal blood will not agglutinate its own cells. If the extraction of the cells from the spot is not possible or if they are too deformed for use, the serum may be extracted from the other half of the spot, and this used to test its agglutinating power toward the red cells of the suspected individuals. These same tests may be applied when it is desired to learn whether a number of blood spots are derived from the same individual. In the author's belief, a small specimen of blood from the body of any individual who has met death by violence, should invariably be preserved for use in such legal examinations. Much of the value of the medico-legal application of agglutination phenomena depends upon their constancy. This the author has investigated and has found that in a period of from three to four months there is but very little variation in these phenomena in a given individual and this variation is only such as might be attributed to faulty technic. He also found that blood spots retain their agglutinability and agglutinating power for a prolonged time.

Sputum as a Culture Medium for Tubercle Bacilli.

—Following up the work of other experimenters along this line, G. GUVOR (Gaz. Osped., July 5, 1903), has made a series of experiments to determine the value of the sputum as a culture medium for the tubercle bacillus. He describes the technic as follows: The required amount of fresh sputum, free from extraneous matter, is collected and allowed to digest upon the water bath from eight to ten hours; after which it is filtered while hot and sterilized for three-quarters of an hour, when it is again filtered. The filtrate can now be used for cultural purposes, in the liquid state or incor-

porated with agar to render it solid. The proportion of agar should not be more than one per cent. With the liquid sputum, the author obtained excellent homogeneous cultures which could be used after ten to twelve days and these he considers not inferior for use to those prepared after the methods of Arloing and Courment. In the combined sputum and agar, the development of tubercle bacilli is promptly evident. Within twenty-four hours proliferation of the bacilli may be recognized in cover-glass preparations made after the method of Hesse; and rapid growth of colonies may be seen with the naked eye upon the third day. The colonies are white and opalescent, their appearance differing in this respect from ordinary glycerinated agar cultures. The author holds that the simplicity and economy of the preparation of this culture medium should favor its general adoption in laboratory work, and further, that these studies serve to emphasize the necessity of disinfectant and astringent treatment in catarrhal affections of the respiratory passages.

Effect of the Nucleoproteids of Heterogeneous Blood on the Red and White Cells.—Certain dangerous signs having been observed from the transfusion of blood, various hypotheses have been advanced concerning the mechanism of the pathogenic influence upon the organism, exerted by the blood of an animal of different species. The effect of the nucleoproteid of parenchymatous tissues upon the morphology of the blood and upon the mechanism of coagulation has been noted by many observers. G. GUERRINI (Gaz. Osped., July 5, 1903) has sought to determine the effect of the nucleoproteids of the blood of healthy animals upon the number and proportion of red and white cells in the blood of an animal of different species. For this purpose, rabbits were injected with the nucleoproteids of dogs, chickens and eels; the nucleoproteids being extracted by Woodridge's method. The author found that injections of a one-per-cent. aqueous solution of sodium carbonate had no apparent effect upon the number of red cells, but a slight increase in the leucocytes followed such injections. Injections of a one-per-cent. solution of nucleoproteids heated to 60° for thirty minutes had practically the same effect as injections with plain sodium carbonate. Injections of the nucleoproteids of rabbits slightly increased the white cells, though they failed to affect the red. Injections of a one-per-cent. solution of the nucleoproteids of heterogeneous blood (dogs, chickens and eels) in one-per-cent. sodium carbonate diminished the absolute and relative number of red cells and increased the white both absolutely and relatively.

Symbiosis of the Influenza Bacillus.—The possibility that symbiosis with certain invisible bacilli may be an important factor in prolonging the life of the bacillus of influenza, is the statement made by M. NEISER (Deut. med. Woch., No. 26, 1903). He bases this on the fact that he has been able to cultivate influenza bacilli through some twenty generations, which were derived from a case of measles conjunctivitis and were associated with xerosis bacilli. In every case the influenza bacillus died out unless this symbiosis with the xerosis bacillus was kept up. It is suggested that the latter may have modified the agar-agar, which was the medium used, in such a way that it was rendered more favorable for the growth of the influenza bacillus. The author also found that the diphtheria also served as a "nurse" for the bacillus of influenza, but not so successfully as the xerosis bacillus.

Sedative Treatment of Hyperchlorhydria.—In the examination of the gastric secretion of patients exhibiting the symptoms of hyperchlorhydria, G. CAMPO (Rev. de Esp. Méd., June 20, 1903) has not infrequently

found the acidity to be normal; and in many patients in whom symptoms of this condition subsided after treatment, he has found the acidity as high as before treatment was instituted. Hence he believes that the discomfort experienced by this class of patients is largely due to hyperesthesia of the gastric mucosa toward hydrochloric acid. He therefore treats his patients suffering from so-called hyperchlorhydria with sedatives, and has obtained the best results from menthol 0.50, cocaine hydrochlorate 0.50 and alcohol 10 c.c. Each drop of this preparation represents 1½ milligrams of menthol and cocaine respectively. The patient experiences great relief from five or ten drops of this solution given at the onset of distress, and the relief is of longer duration than that obtained from alkalies. The dose is gradually diminished after a few days and dropped altogether after subsidence of symptoms. A permanent cure is sometimes effected with this treatment, but the symptoms may return after a time as they do when other remedies have been used.

Anastomotic Circulation of the Heart.—An interesting condition of the heart was discovered at an autopsy by G. GALLI (Münch. med. Woch., July 7, 1903). Though the right coronary artery was entirely obliterated, the parts of the heart supplied by it were normal, while with patent left coronary a sclerotic patch was found in the walls of the left ventricle. By careful dissection of the vessels, an anastomotic branch was discovered which ran from the intact left coronary to the right below the point of occlusion, thus permitting of a circulation in parts of the artery which otherwise would have atrophied. This case illustrates well that the heart, like other organs, possesses a power of adaptation to pathological changes whereby its function for a long time at least, is not interfered with, provided only these changes are not sudden in their development.

Pseudo-tuberculous Bacilli.—That the means of distinguishing the true from the pseudo-bacillus of tuberculosis are not always reliable, is shown by the following case, reported by R. MILCHNER (Berl. klin. Woch., July 20, 1903). In a patient, who had suffered from numerous hemoptyses, a physical examination showed the presence of a localized area of pulmonary dullness, bronchial breathing and small vesicular râles. Examination of the expectorations showed acid-resisting bacteria, closely resembling the true tubercle bacilli and leading to the diagnosis of a pulmonary tuberculosis. Against this supposition appeared the good general condition of the patient and the rather unusual site of the area of dullness over the lower lobes. Inoculation experiments on animals proved negative. Later on the expectorations assumed a very fetid character and the patient finally died from exhaustion no doubt induced by the loss of blood from the numerous hemorrhages. Autopsy showed an extensive bronchiectasis and a large bronchiectatic cavity, but no signs either macroscopic or microscopic, of any tuberculous process. The sections had been hardened in either formalin or alcohol, and no traces of any varieties of bacilli were found, although they were readily demonstrated in large numbers in the sputum before the death of the patient. The author accounts for the discrepancy by assuming that the staining properties of the pseudo-tubercle bacilli were entirely lost by the preliminary treatment of the sections with alcohol and formalin. He suggests that in doubtful cases, frozen sections should be examined and in order to avoid alcohol in dehydrating, the tissues should be imbedded in levulose.

Detection of Blood in Feces.—Stimulated by the recent theory that chlorosis is really brought about by constant slight hemorrhage into the gastro-intestinal tract, O. ROSSEL (Deutsch. Arch. f. klin. Med., Vol. 76, No. 6), suggests the following modification of an old

blood test for examination of feces: About 30 grams of feces are dried, powdered and freed of fat in the Soxhlet apparatus. The powder is then treated with glacial acetic acid, and shaken out with ether. By means of the usual guaiac or aloin test, hematin could then be readily detected in this ether. Care must be taken to use only fresh guaiac. A positive test was still obtained after the ingestion of only three cubic centimeters of blood. No food or drugs behave similarly except large doses of chloride of iron. The feces of a large number of chlorotic girls examined did not contain any more hematin than is normal, but as an aid in the diagnosis of ulcer or cancer of the stomach the test is invaluable.

PHYSIOLOGY.

The Enzymotic Decomposition of the Nucleic Acids.—There are series of physiological and pathological conditions, according to T. ARAKI (Hoppe-Seyler's Zeitschrift, Vol. 28, Nos. 1 and 2), that lead to a dissolution of the substance of the cell-nucleus. This phenomenon is found in its widest application in the absorption of animal tissues; moreover, cells rich in nucleins and cell-products, such as the male sexual elements, can undergo normal dissolution, as has been demonstrated in the testicles of the brook-trout. The disappearance of the nucleus is not necessarily associated with the destruction of the entire cell, but may take place within the unchanged cytoplasm, as is familiarly seen during and after conjugation of the paramecia. The suggestion is strong that some enzyme affects the nuclear substance in the same way that pepsin acts upon albumin. The author found that the nuclear substance obtained from the red blood cells of birds, is rapidly dissolved by trypsin and that an extract of the thymus also contains an enzyme capable of slowly digesting the cell-nucleus. The thymus gland contains two forms of nucleic acids, namely, nucleic-acids *a* and *b*. The author discovered that trypsin is capable of splitting acid *b* with the formation as intermediate products of acid *b* and nucleothymine acid, which are further decomposed on prolonged digestion by means of trypsin. The extract of the thymus contains an enzyme which is capable of bringing about these identical changes. Erepsin, the peptone-splitting ferment of the intestinal mucosa, is also capable of splitting the nucleic acids. Moreover, in the auto-digestion of the intestinal mucosa, the constituent nucleic acid *a* is transformed into the more soluble acid *b*. Long-continued digestion of the mucous membrane results in a considerable reduction of the content of nucleic acids. Similar nuclein-splitting ferments were found in the liver and spleen. It is of peculiar interest that the nuclein group exhibits the same characteristics as the albumin and carbohydrate groups, namely, it exists in the tissues in an insoluble or colloid form, which under the influence of enzymes is transferred into a soluble form cast evidently also into smaller atomic groups.

Transplantation of Submaxillary Gland.—The investigation of the technic and physiology of organ-transplantation will probably bring to light many facts of practical value in medicine and surgery. D. OTTOLENGHI (Arch. Ital. de Biol., June 10, 1903), in transplanting pieces of submaxillary gland about the size of a pea, from one rabbit into the kidney or spleen of another, found that a large part of the transplantation suffered rapid death, only the peripheral portion remaining alive. In the former, with the exception of certain small portions, there is an early necrosis of the epithelium of the salivary ducts, the necrosed material falling into the lumen of the ducts, while the basket-cells remain alive, become infiltrated with fat and later undergo active karyokinetic multiplication, forming within the mem-

brana propria at first one and later several groups of seemingly epithelial elements arranged in concentric circles; these finally block up more or less completely the cavities of the ducts. It is probable that in the formation of these cellular groups these participate to a slight degree with the epithelial elements of the intercalary canals, at the points where they are in connection with the salivary ducts. The cells of the acini can undergo multiplication when the glandular elements of the latter have suffered necrosis. In the peripheral portion of the transplantation, within the acini as well as the intercalary canals, there is a marked multiplication of glandular elements, which does not seem to lead to a new formation of acini nor of secondary canals, but which serves perhaps simply to replace certain destroyed elements, and to increase the size of the acinus the length of the intercalary canal. This proliferation ceases toward the eighth day, at which time certain retrograde changes take place even in the salivary ducts, which are transformed anew into canaliculi lined with a single layer of cells. The author has not been able to discover in the transplanted portions any new formation of solid epithelial growths such as these described by Lubarsch.

The Physiological Action of Certain Phenanthrene Derivatives.—It is generally known that morphine is derived from phenanthrene, a cyclic hydrocarbon having the symbol $C_{14}H_{10}$; the basic character of morphine being determined, like that of all other alkaloids by the presence of nitrogen. According to P. BERGELL and R. PSCHORR (Hoppe-Seyler's Zeitschrift, Vol. 38, Nos. 1 and 2) all the investigations that have so far sought to attribute the physiological action of morphine to single atomic groups, have been carried out almost entirely upon nitrogenous compounds related to morphine. The authors sought to determine to what extent the physiological action of morphine depends upon non-nitrogenous constituents, more particularly phenanthrene and its non-nitrogenous derivatives. They find that phenanthrene itself is quite inert, but that oxyphenanthrene or phenanthrol ($C_{14}H_9OH$) produces in mammals severe tetanic seizures. The position of the hydroxyl group in the molecule has no influence on the physiological effect. Similar symptom-complexes are produced by a carbon- and a sulpho-acid of phenanthrene. No narcotic effect was observed in this entire group. To what extent the effect of phenanthrol may be brought into relation to that of morphine which contains the phenanthrol-complex, and whether the behavior of this class of bodies affords any explanation of the tetanic components of morphine-action,—both of these questions the authors consider as still unanswerable. Substantially different from the action of phenanthrol and its carbon-acids, is that of derivatives of phenanthrene-equinone. These substances both in the test-tube and in the organism, show a decided power of forming methemoglobin, which power is to be attributed to the prepondering influence of the quinone-group. None of these compounds produces the above described tetanic state. Epiosin, a methyl derivative of phenanthrene, also produces methemoglobinemia. It is significant that in pigeons which show an extraordinary resistance toward morphine, severe toxic manifestations are produced by epiosin. Evidently there is some connection between the narcotic and other manifestations of morphine and the methemoglobinemia produced by some of its derivatives.

Certain Constituents of Yeast.—The internal administration of this substance in furunculosis and allied conditions, lends some interest to the research undertaken by O. HINSBERG and E. ROOS (Hoppe-Seyler's Zeitschrift, Vol. 38, Nos. 1 and 2) on the constituents of ordinary beer-yeast. They find that this contains two

different forms of cholesterin, three different fatty acids, a colorless ethereal oil having the odor of hyacinths, phosphates, peptones, gluten-casein, purin bases, considerable quantities of albumin and cellulose-like compounds. As to the medicinal value of yeast, they find that living as well as dead yeast has a mild laxative effect, which is to be attributed to the fatty substance present. This fat was also found effective in certain cutaneous affections.

The Effect of Alcohol upon the Excretion of Uric Acid.—In a series of metabolism experiments, and hourly period experiments in which the urine was collected each hour during the day, S. P. BEEBE (Proc. of the Amer. Physiol. Soc., Amer. Jour. of Physiol., July 1, 1903) found that the use of 75 to 80 c.c. of absolute alcohol contained in diluted alcohol, whisky, beer and port wine, produced in all but one individual a marked increase in the uric acid excretion. The increase began in most cases in the second hour after the meal and reached the highest point at the fifth hour. In the experiment where 50 c.c. of absolute alcohol, suitably diluted with water, were taken without any food after the usual period of fasting, a very marked diuresis was produced, but a decrease in uric acid was noted. This indicated that the effect produced is due to a disturbance in the metabolism of the purin bases of the food.

Experimental Contribution to the Physiology of Fasting.—The effect of prolonged fasting in dogs upon the functional activity of various parts of the gastro-enteric canal, and upon the anatomical elements of the thyroid gland, was studied by A. G. BARBÈRA (Archives Italiennes de Biologie, June 10, 1903) with the following results: The secreting fibers of the submaxillary gland contained in the tympanic nerve preserve their electrical excitability to the very last moments of the life of the fasting animal. An electrical stimulus of the tympanic nerve causes a marked, although less than normal, increase in the secretion of saliva. In this instance there are even periods of latent and survival excitation. The stimulation of the cervical sympathetic, on the other hand, produces frequently no secretion of saliva. The subcutaneous injection of pilocarpine augments the secretion of saliva, which is completely arrested by a subcutaneous injection of atropine. Curare injected into the veins increases the secretion. After the injection of pilocarpine, the stimulation of the tympanic nerve still further increases the salivary flow, while it cannot arouse this after it has been inhibited by the action of atropine. With the nerves remaining intact, a small piece of paper moistened with acetic acid and placed on the buccal mucous membrane, excites an abundant secretion of limpid, watery saliva. This secretion obtained in all the experiments above described, when chemically investigated, showed the absence of sulphocyanide of potassium, and by means of the test of artificial digestion, failed to reveal the presence of any diastatic ferment. This is not surprising inasmuch as it is well known that under normal conditions of feeding, the saliva of dogs, according to most investigators, contains no alkaline sulphocyanides, and, according to all workers, contains no ptyaline. The author found the same tenacity of function under conditions of fasting in the gastric secretory fibers of the vagus nerve, and the glandular cells of the mucous membrane of the stomach, although the gastric juice was reduced in quantity. It also contained very little free hydrochloric acid and pepsin. Intravenous injection of curare excited a secretion of gastric juice having the same character as that produced by stimulation of the vagus. The same relations were found with respect to the fibers of

the vagus that preside over the pancreas, to the intrapancreatic nervous ganglia and to the secretory cells of the pancreas; the pancreatic juice obtained by the various means, retaining, although in a restricted degree, the power of transforming albumin into peptone, and starch into sugar. Upon histological examination, the author together with D. Bicci, found that in the case of the suprarenal glands there is a reduction in size of the cell-bodies and nuclei, the diminution of the protoplasm being greater than that of the nucleus. This phenomenon is more pronounced in the cortex than in the medulla. The same reduction in size of the protoplasm and nucleus were found in the thyroid gland. The latter, at no period in the fast, ceased to elaborate the colloid substance in which are supposed to be the active principles of the gland. There is also a diminution of intercellular substance. The nuclei diminish in size relatively less than do those of the suprarenal gland.

The Fermentative Processes of the Liver.—A research was undertaken by V. DUCCESCHI and M. ALMAGIA (Archiv. Ital. de Biol., July 10, 1903), with the object of determining to what extent the presence and activity of the soluble ferment contained in a tissue, are immediately dependent upon the histological integrity of the cellular elements of the tissue; also whether the study of the enzymic activities of a tissue profoundly changed in its structural elements, would allow any differentiation between that part of the functional manifestations connected with the properties and integrity of the protoplasm as a cytological structure, and that part which depends, on the contrary, upon the presence of soluble enzymes in the cellular juices. Further, they hoped to determine in the special case of the liver, upon which the investigations were carried out, whether the action of phosphorus, pushed to the point of causing the severest forms of degeneration, would modify the activity of the oxidizing ferment of this organ, and whether the absence of the oxidative processes, to which certain authors attribute the genesis of fatty metamorphosis of the tissues, can be explained, at least for the liver, upon the basis of an alterative of the activities of the oxidases contained in it. They obtained the following results: In a liver in which, as the result of phosphorus poisoning, considerable fatty metamorphosis has taken place, the activity of the oxidases is not diminished, at least in the beginning, in comparison with the normal liver. It can not, therefore, be admitted that the diminution of the oxidative phenomena of the organism, regarded by some authors as consecutive to phosphorus poisoning, can be attributed to a direct action of the poison upon the oxidizing ferments. There is no appreciable difference between the content of lipase in a fatty liver and that of a normal liver. The study of the functional capacities of an organ markedly changed in the intimate structure of its cellular elements, in the cases detailed above, serves to distinguish the enzymic activities from those bound up in the integrity of the structural elements. This is possible in taking account of the fact that the enzymes have no tendency, at least in the instance studied, of leaving cells which are the seat of intense necrobiotic processes. The proteolytic enzymes of the liver exert no apparent action upon the activity of the oxidases. In the case of old animals compared with young ones, the quantity of oxidases in the liver is found to be markedly diminished.

The Biochemistry of Certain Nucleo-histones and Nucleo-proteids.—The discovery by Lillienfeld that the nucleo-histon, obtained from the watery extract of the thymus by precipitation with dilute acetic acid, is capable, in the presence of salts of calcium, of transforming fibrinogen into fibrin, was the first of a series

of valuable data concerning the catalytic powers of these nuclear bodies. A. HERLITZKA and A. BORRINO (Arch. Ital. de Biol., June 10, 1903) report the results of their investigations of the problem as to whether the biochemical action of the nucleo-proteids is a general one for all these substances, or whether it is specific for each nucleo-proteid, depending on the function of the organ from which it is obtained. Lilienfeld considered nucleo-histon as the zymogen which, under the influence of the salts of calcium, is split into histon and nuclein, the latter inciting the coagulation of the fibrinogen and therefore revealing itself as the fibrin-ferment. Huiscamp showed that the nucleo-histon of Lilienfeld is not a chemical entity but is a mixture of nucleo-histon and nucleo-proteid, the former existing in the nucleus, the latter in the cytoplasm of the cell. He believed that these substances are the zymogens of fibrin-ferment, which is but the combination of calcium with the zymogen. The authors find that nucleo-proteids and nucleo-histones behave like acids. The nucleo-proteids alone and not the nucleo-histones have a destructive action on hemoglobin, which action is a general one for the nucleo-proteids of several organs. The nucleo-histon as well as the nucleo-proteid of the liver destroys glycogen; this action is a specific one and is not possessed by the nucleo-proteids or nucleo-histones of the thymus and kidneys. The results so far obtained lead the authors to conclude that the biochemic action of these nucleins is specific when the corresponding metabolic function of their parent organ is specific, and this action is general when the corresponding function is common to several organs. The authors were not able to cause the transformation of carbonate of ammonium into urea by means of these substances. In studying the possible glycolytic action of these substances they attained certain interesting though unexpected results, namely, the nucleo-histones of the thymus and the kidneys have no glycolytic power; the latter is very slight in the case of the nucleo-proteid of the liver, a little stronger in that of the thymus, stronger still in that of the kidney and maximum in the nucleo-histon of the liver. Bearing in mind the different distribution of these two bodies with regard to nucleus and cytoplasm, we may conclude that the nucleus of the hepatic cells is endowed with a strong glycolytic power, while their cytoplasm has this only to a slight degree or none at all. The reverse is the case with the thymus and kidneys. In this connection is pointed out the difference between what the authors denominate extrinsic and intrinsic metabolism. The latter has to do with those anabolic and catabolic processes in which there is the construction and destruction of the living proteid substance. On the other hand, extrinsic metabolism comes into play when the cells exert a chemical action on the substances that come into contact with them, but which do not form part of the living protoplasm. This is the form of metabolism which the authors are investigating. For example, the action of the liver on glycogen and on glucose. With regard to this organ it thus appears that the nucleus as well as the cytoplasm can share not only in the intrinsic metabolism of the cell, which has been known for a long time, but also in the extrinsic metabolism; at any rate, they share in these different processes to a different degree. While the nucleus as well as the cytoplasm of the liver cell destroy glycogen, only the nucleus destroys glucose and only the cytoplasm destroys hemoglobin. This destructive action in hemoglobin is, however, exercised also, although to a slighter degree, by the cytoplasm of the cells of the kidneys and thymus, while the nucleus never participates in this action. One may conclude that all the cells of the organism share more or less in

the destruction of hemoglobin. It thus appears that the catalytic phenomena of the body are not always to be attributed to enzymes produced by the living cell, but that they are also peculiar to certain chemical substances produced by the living cell, and forming part of the protoplasm. The catalytic action of the nucleo-proteids is exercised not only when they are in solution but also when they are in suspension. Neither alcohol, corrosive sublimate nor chloroform inhibits the destructive effect of the nucleo-proteids of the liver on hemoglobin. This whole series of experiments suggests lines of inquiry of extreme interest to physiology and practical medicine.

Influence of Speed, Temperature and Practice on Metabolism.—Every research that throws light on the mysterious metabolic processes of the body is welcomed by physiologist and clinician alike. To the large number of painstaking investigations of all the factors that in any way influence the exchange of material in the body are now added those of N. ZUNTZ (Pflüger's Arch., Vol. 95, Nos. 3-4). He finds that contrary to the case in man and the horse, speed in dogs has no perceptible effect on metabolism for a unit of distance. With increased body-temperature, the metabolism for the resting body, and in the case of the respiratory work is increased. The muscles, however, perform a certain amount of work with the same expenditure of material as in the case of normal temperature. The amount of expenditure of tissue for single acts of the musculature is considerably reduced by practice. But in the case of any definite piece of work, practice does not cause any saving of metabolism in the case of any other, not specially practiced, operation. The greater the exercise of the muscles, the greater is the metabolism of rest, just as in the case of forced proteid feeding.

Size of Body and Metabolism.—As the result of a series of experiments on dogs, B. SLOWTZOFF (Pflüger's Arch., Vol. 95, Nos. 3-4) found that during horizontal movement of an animal, the smaller the animal the greater the amount of work for the same mass moved a given distance. During rest, metabolism is dependent on the extent of surface of the animal, although this is not the only factor that determines the degree of metabolism. The expenditure of work during horizontal motion is only approximately proportional to the extent of bodily surface; there are others, as yet unknown, factors that cause individual deviations from this rule. The expenditure of work during climbing is markedly different for different animals, no regular relationship between these differences and size of body having yet been discovered.

Anatomy of Portal Anastomosis.—Since the surgical treatment for cirrhosis of the liver has resulted so favorably in many instances, the normal anastomotic channels between the portal and systemic circulations have become the subject of considerable investigation, in order to understand more fully nature's methods of relieving the distressing symptoms of this disease. R. FLOYD (Med. Rec., July 4, 1903) has found by dissections that these are from normal sites of anastomosis between the portal and systemic veins in the adult: (1) Anastomoses at the lower end of the esophagus which lie chiefly between the mucous and muscular layers of its walls; (2) rectal anastomoses between the inferior hemorrhoidal veins flowing into the internal pudic, the middle hemorrhoidal flowing into the internal iliac and the superior hemorrhoidal branches of the inferior mesenteric; (3) the accessory portal veins of Sappey. These are veins in the suspensory ligament of the liver which establish anastomoses between the liver and the veins of the diaphragm and anterior abdominal wall; (4) the retroperitoneal veins, which join the veins of

the posterior abdominal wall to the duodenum, pancreas and part of the colon where these lie in direct contact with posterior wall of the abdomen.

Effect of Suprarenal Capsule on Blood Vessels.—An investigation of the precise action of adrenalin on the blood vessels of a rabbit's ear under varying circumstances was made by S. J. MELTZER and C. MELTZER (*Am. Jour. of Physiol.*, July 1, 1903) with the following results: The subcutaneous injection of suprarenal capsule exerts a distinct effect on the blood-vessels of the ear. In normal animals a large, distinctly poisonous dose causes blanching of the ear. On the other hand, a medium dose causes a moderate but distinct dilatation of the blood-vessels. In rabbits in which the vasomotor nerves were cut on one side, a subcutaneous injection of a medium dose of adrenalin induced a distinct contraction of the vessels on the operated side and a dilatation on the unoperated side. Apparently adrenalin is but very little oxidized in the subcutaneous tissues.

The Significance of Diabetes.—It would be interesting, if space permitted, to review the entire subject of the physiology of glycogen in all its relations, as presented in a treatise of 398 pages by E. F. W. PFLÜGER (*Pflüger's Archiv*, Vol. 96, Nos. 1 to 8). It will suffice to review his conclusions as to the real nature of the physiological changes that lie at the basis of diabetes mellitus, which conclusions are of extreme practical interest. To Claude Bernard must be given the credit for the discovery not only of glycogen, but also of the fact that the nervous system exercises a powerful influence in the conversion of glycogen into sugar. Furthermore, he located in the floor of the fourth ventricle the so-called "diabetes center," for the puncture of this region increased the amount of the sugar in the body to such an extent as to occasion its appearance in the urine. This increased saccharine output was attributed by Claude Bernard to nerve impulses transmitted along the vagus nerves to the liver, but the later researches of C. Eckhard have shown that these impulses pass along the splanchnics instead, so that sections of the latter prevents the increased output of sugar. A fact of great importance was pointed out by the famous French physiologist, namely, that artificial diabetes is the result of a stimulation and not of a paralysis of function. It had been shown that certain salts as well as other substances produce glycosuria by stimulation of the sugar center in the medulla oblongata. Bernard thought that the influence of curare, morphine and puncture of the medulla, in producing diabetes, acted through the nervous system on the blood-vessels, leading to an increased circulation and therefore to an accelerated activity of the glycolytic ferment of the liver. The late experiments of Heidenhain have shown that after poisoning with atropine stimulation of the cervical sympathetic produces a secretion from the submaxillary gland, although the circulation in the latter is markedly reduced. This made it clearer that specific secretory nerves control the activity of the various glands. Analogy would indicate that in the splanchnic nerves there are not only fibers innervating the hepatic blood-vessels, but also fibers whose specific energy consists in exciting the sugar formation of the liver. This last is brought about immediately by means of a diastatic ferment. It would appear that the nerves, acting upon the cellular substance cause a splitting off of this ferment, which is a decomposition product of the protoplasm. According to Pflüger, this fact explains the phenomenon that in the course of a series of convulsions preceding the death of an animal, there is an associated innervation of the liver, expressing itself in the formation of a large quantity of ferment and the consequent rapid accumulation of sugar. From this explanation it can be rapidly

understood how other provinces of the nervous system than those already mentioned can come into relation with the formation of sugar. Stimulation of the central stump of the depressor nerve, or of the cervical sympathetic, section of the right or left sciatic nerves and certain diseases of nerve-trunks, such as neuralgia of the trigeminal nerve, paralysis of the facial nerve and apoplexy, have all produced glycosuria. Knowing the ease with which stimulation of many different nerves produces glycosuria, one is tempted, from the standpoint of the diabetic, to deprecate this mechanism. The physiologist, however, inquires after the possible purpose of such an arrangement in the body. The author finds this purpose in the fact that as the muscles and other tissues use up by active work their supply of reserve food, some provision must be had for notifying the liver that more nutritive material is required. In this is found the significance of the reflex nervous stimulation of the liver. In this wonderfully efficient mechanism one sees an expression of the law formulated by Pflüger, namely, the law of self-regulation. The muscular contraction that creates the need, at the same time occasions its satisfaction. As in the case of the regulation of the heart-beat there are two antagonistic systems of nerves, one increasing and the other diminishing its work, so it appears that for the regulation of the content of sugar in the blood there are provided two antagonistic mechanisms. In this way pancreas-diabetes is most naturally explained by the supposition that the rising sugar-content of the blood occasions the separation from the pancreas of a substance which, passing into the blood, diminishes the sugar-forming activity of the liver—either by acting upon the sugar center of the medulla or upon the substance of the liver cells directly. The acceptance of the hypothesis of these two antagonistic mechanisms would remove all difficulties in the way of a clear explanation of the significance of diabetes. These difficulties centered in the fact that frequently in cases of severe diabetes the pancreas is not only apparently, but also actually, entirely healthy. If, as the result of certain conditions in the sensory nerves or of the brain or spinal cord, or as the result of direct stimuli of the liver cells, the production of sugar is extraordinary, then the inhibitory activity of the anti-diastase of the pancreas is no longer sufficient to bring about the normal equilibrium. Here is to be seen diabetes in spite of a healthy pancreas. If this organ is diseased no anti-diastase is produced, and the normal reflexly aroused formation of sugar continues in the liver, with the accumulation of this substance in the blood, for the normal inhibition of the sugar-output is absent. Another difficulty was found in the fact that certain cases occur in which the entire pancreas seems to be degenerated, without the presence of diabetes. It is impossible, however, to state that there are not a few cells which, although diseased, are capable of exercising their function. It is furthermore possible that in cases of carcinoma the weakening of the vital forces causes such a marked diminution of the sugar forming capacity of the liver that even without the need of inhibition no diabetes results. All the organs of the body stand in reciprocal relationship with the liver, in order to regulate the needs of nutrition. This relationship is rendered possible above all by the nervous system, but also by means of certain substances that are produced by the various organs. A continuous play of forces and counterforces determines the dynamic equilibrium that corresponds to health. It is therefore easy to comprehend how it is possible for apparently innumerable substances to bring about glycosuria. It appears nevertheless open to consideration that an error of metabolism may give rise to a substance that produces glycosuria,

and Hans Leo seeks in such a substance the origin of diabetes. But this will not explain puncture diabetes nor pancreas diabetes. For the latter seems to be due not to the presence of any substance, but to the absence of some substance. In the blood of diabetics there is found acetone, which, according to Ruschhaupt, produces glycosuria, but which is rather the result of this disease. There is again to be taken into consideration the fact that a substance which produces glycosuria in healthy individuals may perhaps have the opposite effect in diabetics. Such a substance is morphine, which causes glycosuria in sound individuals and lessens it in those suffering from diabetes. These, at first sight, puzzling facts are easily explained, if one takes into consideration the circumstances that the regulation of the sugar-formation of the liver, like that of the heart-beat, is brought about by accelerating and inhibitory processes. In the healthy morphine stimulates both sets of processes, but those that accelerate the production of sugar are the stronger. In diabetics the accelerating processes, being continually at work, are thereby weakened, hence the morphine administered, while still arousing both sets of processes, gives to the inhibitory ones the upper hand. This is similar to the phenomenon in which, after section of the freshly exposed sciatic nerve and stimulation of the peripheral stump, the vasoconstrictor prevail over the vasodilator nerves. If stimulation be deferred until a day after section of the nerve, the vasoconstrictors losing their irritability more rapidly than the vasodilators, stimulation of the peripheral stump causes expansion of the arteries. Starting out with the supposition that the formation of sugar in the organism under normal conditions, depends upon a dynamic equilibrium of the various functions, it is easily understood how a great many substances can produce glycosuria. Every foreign substance has some untoward action in our body. However this substance act, one cannot expect that it will effect force or counterforce in an equal degree. It will disturb the equilibrium. Many clinicians oppose the doctrine that diabetes is a neurosis, inasmuch as autopsy frequently discloses no disease of the brain, spinal cord, liver or pancreas. But the crudest logic alone asserts that there can be no disease without a diseased organ. Moreover, those very diseases in which pathological anatomy frequently finds nothing, are diseases of the brain. Those clinicians who will not recognize in diabetes a neurosis report that frequently purely psychical causes lie at its base. Unanimous are all authorities in this domain, that there is but one reliable remedy for this disease, namely, opium. According to a well-known clinician, opium is valuable even though the case of diabetes is not one of nervous origin. According to Pflüger, opium is always efficient merely because every case of diabetes is founded on a nervous basis. The latter is often the necessary result of another disease, which is no neurosis, so that the diabetes is merely a symptom.

The Effect of Laked Blood upon the Heart.—The result of a series of experiments performed by E. BRANDENBURG (Pflüger's Archiv, Vol. 95, Nos. 11 to 12) showed that the blood of the ruminants and particularly that of the rabbit, guinea-pig, horse, pig and man, after dissolution of the red blood-corpuscles, is not in a condition to nourish the isolated heart of the frog, while the same varieties of blood, in the same concentration, but with the red corpuscles intact, afford a necessary food for the heart. In complete contradiction to these results are those in which the cystolic blood of cats and dogs has kept up the activity of the heart for hours at a time. These results agree with those obtained by Langendorff, who found that the isolated heart of the cat and dog can be nourished by the laked blood of

the same animal, which is not the case, however, with the rabbit. If the various forms of blood used in the above experiments be compared, there will be found marked differences in the content of a certain substance, which, provided largely in the red corpuscles, is by their dissolution set free and thereby acquires the opportunity of exerting upon the heart an influence which, in the intact condition of the corpuscles, it is not able to manifest. This substance is potassium. The forms of laked blood that showed an abundance of K_2O were those which had a particularly deleterious influence upon the frog's heart. On the other hand, those forms of blood poor in CaO , even in the cytolytic condition, were excellent cardiac nutrients.

The Absorption and Fermentative Splitting of the Disaccharides in the Intestine.—The results of a series of experiments performed on dogs by F. ROHMANN and J. NAGANO (Pflüger's Archiv, Vol. 95, Nos. 11 to 12) showed that of the three disaccharides, cane-sugar is absorbed the quickest, next comes maltose, and last of all milk-sugar, which is absorbed much more slowly than either of the others. The absorption of the disaccharides is better in the upper than in the lower part of the small intestine, and is slower than that of the simple sugars that are formed from them by splitting. The amount of sugar absorbed is also dependent upon the concentration of the solution of sugar present in the intestine. Moreover, the absorption of water is dependent upon the kind of sugar present in the intestine, and, in the case of any one form of sugar, upon its concentration. In seeking to bring the greater absorptive capacity of the jejunum into some numerical relationship with the latter, the authors find that the weight of the mucous membrane relatively to its length is without exception far greater in the jejunum than in the ileum. Moreover, one gram of jejunal mucous membrane takes up more sugar than one gram of mucous membrane in the ileum. The concentration of the solutions of sugar in the intestine need not be higher than 5 per cent. in order that all the sugar eaten should be absorbed. The water of cane-sugar solutions is more quickly taken up than that from solutions of maltose or milk-sugar. On the other hand, water is more readily absorbed in the ileum. The spontaneously secreted juice of the jejunum contains very little invertin, which is able to split up only a small portion of the sugar absorbed. While cane-sugar and maltose are split up to a certain degree before they are absorbed, milk-sugar is not split up. Although in the absorption of a two-per-cent. solution of cane-sugar in the ileum no invertin is secreted by the mucous membrane, yet the latter has the power of splitting up the sugar, if not completely, at least to a great degree. This power of the mucous membrane is greater in the case of the jejunum. Five per cent. is approximately the concentration of sugar, in the presence of which the inverting capacity of the jejunum as well as the ileum is capable of splitting the absorbed sugar into dextrose and levulose. If there enter the intestine solutions of sugar of a greater concentration, it is possible that cane-sugar enters the circulation unsplit. It is then cast off by the kidneys as a foreign body. The inversion that is caused by an enzyme present in the mucous membrane exceeds that which results from the action of an enzyme liberated from the mucous membrane. Moreover, the inversion of cane sugar occurs as soon as it come in contact with the intestinal mucous membrane. These results do not agree with the earlier experiences of physiologists. Enzymatic activity has been hitherto considered as possible only in solutions, in the secretions, or in the extracts of organs. According to Hoppe-Seyler, in such solutions the ferments act like dissolved electrolytes,

e.g., invertin like hydrochloric acid. According to the author, this analogy would not hold at the present day, for the solutions of enzymes are not true solutions but colloidal solutions. It is possible that inversion exists in a colloidal form in the cells of the intestinal mucosa. It decomposes the cane-sugar when the solution of the latter merely comes in contact with the cells. What has been found true with regard to the inversion of cane-sugar is also true of maltose, with the exception that dextrose only is formed from maltose, and the maltose secreted by the ileum is relatively more abundant than the invertin. As regards milk sugar it was found that the mucosa in the upper part of the small intestine splits this sugar only at times and then in very small amounts, while the membrane of the lower parts of the intestine act upon it very slightly or not at all. This failure of enzymostic splitting explains the slow absorption of milk-sugar.

OBSTETRICS AND GYNECOLOGY.

Morphine-Scopolamin Narcosis in Gynecology.—

It is rather disappointing to perform larger gynecological operations with morphine and scopolamin injections, according to S. FLATAU (*Müch. med. Woch.*, July 14, 1903), for the amount of ether or chloroform necessary to produce complete relaxation was almost as large as under ordinary conditions and retching and vomiting were prominent after-effects. By increasing the doses of the two drugs, however, smaller operations, such as vaginal plastics, could be done successfully even without ether or chloroform. With three doses of $\frac{1}{4}$ grains (1.01) morphine at intervals of one to two hours and $\frac{1}{100}$ grains (0.0012) scopolamin, it is, however, necessary to examine the heart, lungs and urine of the patient most carefully. In 22 out of 30 cases the narcosis was perfect; the respirations were deep and regular, the face somewhat flushed and the pupil dilated. In the other, the excitation was so marked that small amounts of chloroform were necessary. Vomiting or other after-effects did not occur, in fact the patient awoke in excellent condition 4 to 8 hours after the operation. It is well to give a trial injection the night before, to be assured that no idiosyncrasy toward the drugs exists. With all care the author was so unfortunate as to lose one case, but here probably a degeneration of the heart subsequent to hemorrhage was present. For general use in surgery and in obstetrics this method of narcosis must still be regarded as too dangerous.

Abdominal Hysterectomy by "Décollation."—This operation, the essential feature of which lies in amputation of the neck of the uterus (décollation) prior to removal of the body, was originated by J. L. FAURE (*Trib. Méd.*, July 4, 1903) some three years ago, and has been practised by him since that time in the majority of cases requiring abdominal hysterectomy. The author makes the section at a point corresponding to the uterine isthmus; after which, the body being no longer held down by the vaginal attachment of the cervix, it is a comparatively easy matter to sever the sole remaining attachments to the pelvis, that is, the broad ligaments. In the absence of too extensive adhesions between the uterus and rectum or adnexa, the isthmus is most readily reached from the cul-de-sac of Douglas. The section is made from this point with a pair of curved blunt scissors, and the body left freely movable and easily subjected to its further detachment from the pelvis. In the presence of extensive adhesions in Douglas' cul-de-sac or of a retroflexed uterus, the isthmus should be attacked from the front; that is, within the vesico-uterine cul-de-sac, where it may be reached and resected from before backward with the curved blunt scissors. In the author's opinion, pre-

liminary section of the neck of the uterus gives to abdominal hysterectomy a facility and simplicity which should lead to the general adoption of this method.

Pregnancy Complicated by Fibroids.—When one has seen patients with multiple fibroids pass through the course of pregnancy, labor and puerperium in an entirely normal way, or has discovered such growths for the first time after the uterus is emptied, HENRY C. COE (*Am. Jour. of Obstet.*, June, 1903) thinks that one is apt to regard with disapproval the sweeping statements of those alarmists who see danger and death in every case of pregnancy complicated by fibroids. Fortunately the chances of conception, especially in the case of large tumors, are comparatively slight. OLSHAUSEN (*Veit's Handbuch der Gyn.*, 1897, Vol. II, p. 7651), by combining series of observations, estimates that 30 per cent. of all women with fibroids are sterile, while Winckel states that 41.6 per cent. of women with fibroid uteri who have borne children are uniparæ. No statistics have been given showing what proportion abort in the early months. Cases of pregnancy complicated by fibroids may be included under four headings, viz.: (1) Those in which pregnancy will doubtless go on to full term with prospect of a normal delivery; (2) those in which the patient must be kept under constant observation in view of the necessity of possible interference; (3) those in which there is considerable risk to the mother or child, or both, before and during labor; (4) cases in which surgical interference is absolutely indicated. Hence the treatment may be: (1) Entirely expectant; (2) non-surgical, with the possible anticipation of the date of normal labor; (3) surgical, either (a) conservative, or (b) radical. Where the pregnancy had not advanced beyond the third month one would be influenced by the previous history. The writer feels that it is the obstetrician's duty to warn a young woman against pregnancy where she has a fibroid tumor which may give rise to serious trouble, even though it has never caused any marked symptoms. If she is determined to marry, nevertheless, the propriety of performing a conservative operation (myomectomy) for the removal of the tumor, may be considered. Under proper limitations this would be quite justifiable, and numerous successful cases have been reported in which normal pregnancy and labor have followed. How far it is possible to go in advising married women with fibroids to avoid conception is a question which each one must answer to his own conscience. In the presence of a neoplasm which has already acquired surgical importance, it is certainly unwise to allow the patient to incur the additional risk of a pregnancy which can only terminate unfortunately.

Therapeutic Feticide: its Medicolegal Aspect.—

Of late there has been a great deal of discussion upon this subject by the various French Societies, and in an able paper CH. MAYGIER (*Obstetrique*, May, 1903) sets forth the following conclusions on the subject: (1) The physician should incur only the responsibility in the terms of a common duty; that is to say, if it is possible to be relieved of all charge of mistake, imprudence or of negligence, by putting aside the scientific aspect of the question of advisability of such procedure; (2) the surgeon should not perform feticide without the formal desire of the patient, who should be possessed of all her mental faculties and in full realization of what is being done; (3) the operation should only be done in cases of exceptional urgency or in other conditions which cannot be prevented, under which circumstances the physician may intervene without the knowledge of the patient. (4) In no case should the physician permit himself to substitute an operation for the one proposed by him. Should it be urged by the patient or those having

legal authority to act for her, provided the doctor considers such an operation dangerous or inopportune? The refusal to accept his intervention under the conditions proposed by him, relieves him of all obligation and of all responsibility as to the consequences of his refusal to act. Humanity alone should make it a duty for him to intervene.

Conservative Surgery on the Adnexa.—In discussing the relative value of this method of dealing with lesions of the adnexa, HECTOR TREUB (*Annals of Gyn.*, May, 1903) remarks that the danger of death from operation should not be more than two per cent. One cannot always be sure of affording the patient a complete cure of the trouble for which the operation was performed, so that there is a good possibility that a secondary operation, radical in character, may have to be performed some later period. Moreover, there is no way to foretell that the operation may not produce a new malady in the shape of a precocious menopause. In salpingo-oophoritis the so-called medical treatment is all that is necessary in a goodly proportion of the cases. If the medical treatment has been insufficient or contraindicated, a radical operation should never be done at the outset, no matter what the conditions may be. Posterior colpotomy should always be the first step in the operative procedures. When by this means one has found that there is a tuberculous condition to deal with a hysterectomy may be readily performed. Where there is a stubborn hydrosalpinx after repeated colpotomy, and which necessitates other intervention, and in the case where one is going to try to remedy sterility in women, conservative abdominal operations (resection, salpingotomy, salpingo-oophorosydesis) are indicated. Salpingorrhaphy should be reserved as an accessory operation during the performance of a laparotomy performed for no matter what other indication.

The Treatment of Retroversio Uteri.—The most excellent treatment of this subject in a paper by Dr. FIGUERA, of Nice, is analyzed by M. MORISSETTE (*La Gynécologie*, June, 1903). Taking up the condition in pregnant and non-pregnant, the following are the conclusions of the author as to the proper method of treatment: (1) Curative treatment of retrodeviation of the uterus favors fecundation with women who have been sterile; (2) in recent retrodeviations, where the uterus is freely movable, the employment of pessaries may be most successful in the production of a cure of the trouble. The period of genital involution is truly the psychological period of the pessary. (3) In women with intact peronea in the absence of lesions of the adnexa, the Alexander operation is the one of choice. Where there are adhesions of the adnexa, laparotomy is indicated, followed by abdominal fixation and transfixion of the round ligaments. (4) In multiparæ who have torn perineums the abdominal fixation should be supplemented by plastic operations upon the cervix, vagina and perineum. This is the combined treatment of M. Doleris (1887-88.) In retrodisplacements of the gravid uterus manual replacement should be performed as soon as the condition is recognized. If this is not permissible, one should do celiotomy and shorten the round ligaments intra-abdominally, and there will result a direct and definite cure of the deformity.

GENITO-URINARY AND SKIN DISEASES.

New Methods in Treating Hydrocele.—In an article dealing with the diagnosis and treatment of hydrocele, F. D. ROLDAN (*Rev. de Med. y Cir. de la Habana*, No. 10, 1903) describes an apparatus devised by him for the introduction of medicinal fluids into the sac after evacuation of the contents of a hydrocele.

This apparatus is composed of three parts: A gutta percha canula which is adaptable to any trocar, a graduated glass vessel with a capacity of about 8 ounces and a vulcanized rubber tube 13 inches long connecting canula and vessel. With this apparatus a variety of maneuvers may be executed without removal of the canula from the tumor. Its advantages may best be appreciated by a description of the author's method of procedure after evacuation of the tumor. The canula being inserted, from 1¼ to 2 ounces of a 1-in-100 solution of cocaine is poured into the glass graduate and by raising the latter, the fluid is made to flow into the sac. After two minutes, this is withdrawn by inverting and carrying the vessel below the level of the tumor. The vessel is next raised and into it is poured tincture of iodine, which is in turn allowed to flow into the sac by carrying the graduate above the tumor. This fluid is retained for three to four minutes, when it is syphoned out by inverting and lowering the vessel. The sac is then thoroughly washed out with sterilized water, which has been poured into the graduate, by alternately raising and lowering the vessel. A new method of closing the wound made in the radical treatment of hydrocele has also been devised by the author. The details of this procedure are seen at a glance in the illustrations accompanying the article, and to this the reader is referred. Suffice it to say that two rows of continuous sutures are used; one for the vaginal sheath, the other for the skin; and by an ingenious arrangement both may be removed simultaneously and without pain after healing has taken place.

Epidural Injections in Genito-Urinary Diseases.—Epidural injections, i.e., injections between the periosteum of the vertebrae and the dura mater in the sacral region, constitute a new and apparently very successful method of treating functional diseases of the genito-urinary tract. A. STRAUSS (*Münch. med. Woch.*, July 14, 1903) employs a solution consisting of cocaine muriate gr. ⅓ (0.01), sodium chloride 3ij (0.2), aq. destill ad. 3ij (100.0), to which are added 2 drops of a 5-per-cent. solution of carbolic acid. In repeated doses of 1¼ to 7½ drams (5 to 30 cubic centimeters) much improvement was accomplished in enuresis nocturna, acquired incontinency, neuropathic polyuria, impotency and spermatorrhea and sexual neurasthenia. Untoward symptoms do not occur though sometimes the patients complain of a sensation of pressure in the lower spine which rapidly disappears with rest. For syphilis a 2-per-cent. solution of sublimate was used every second day or a 10-per-cent. solution of salicylate of mercury in liquid paraffin twice weekly; contrasted with the intramuscular method the reaction was, however, more severe, so that the latter is to be preferred for dispensary use. It is possible that in the cerebral and spinal manifestations of lues, this form of giving mercury has a great future provided salts that are better tolerated are employed.

NEUROLOGY.

Tabes and Marriage.—A statistical article based upon a study of 240 tabetics and dealing with the influence of tabes upon fecundity and the health of the offspring in marriages in which one parent was afflicted with locomotor ataxia, is presented by A. PITRES (*Jour. de Méd. de Bordeaux*, July 12, 1903). The 31 celibates of this number are dismissed by the author without comment. The issue of the remaining 209 amounted to 483 children; of whom 197 were still-born or died in the early months and 286 survived; making an average of 2.31 births to each couple, with but 1.36 living children. Carrying the analysis further, the author states that of the 209 marriages, 42 or 20 per cent. were absolutely sterile, 32 or 15 per cent. resulted in still-births

or death shortly after birth; while in the remaining 135 or 60 per cent. there were living children in the relatively high proportion of 2.11 per family. The high mortality seen in the offspring of tabetics, the author believes, is attributable to the antecedent infection rather than indirectly to tabes; and this infection is, in the majority of cases, syphilitic. He cites figures which go to show that the mortality of children born before development of tabes in either parent was 44 per cent.; while those born after the appearance of tabes showed a mortality of but 28 per cent. This finding furnishes, in his opinion, additional proof of the statement made by Régis, to the effect that the offspring of tabetics have a better chance of life and health when born in the later stages of the parents' disease than at a period nearer to the antecedent infection. As to the outcome of his investigations looking to the determination of the influence of syphilis upon the mortality of tabetics' children, the following figures are quoted: Of 77 male subjects who had undoubtedly had syphilis, 187 children were born, of whom 33 per cent. were still-born or died in early infancy, and 67 per cent. survived. Of 34 who denied antecedent syphilis, 81 children were born, of whom 20 per cent. were still-born or died shortly after birth and 80 per cent. survived. With few exceptions, Pitres finds that the surviving children of tabetics are uninfluenced by the parents' disease; their physical and intellectual development proceeding normally as that of other children; and of the 286 children of tabetic parents, whom he kept under observation, many were alive at twenty years, and some had attained thirty and thirty-five years at the time of writing. In none did tabes or Friedreich's disease develop, neither was there evidence of any other nervous affection. None showed signs of physical or mental degeneracy, nor was the influence of syphilis apparent in any. On the other hand, some developed diseases independent of all hereditary influence; such as tuberculosis, rheumatic cardiopathies, etc. The great majority were, however, healthy in body and mind.

EYE, EAR, NOSE AND THROAT.

Erysipelas of the Larynx.—Massei pointed out some time ago two varieties of erysipelas of the larynx: one where the general symptoms were prevalent, the other where the local symptoms were the most prominent. KONTCHERSKY (Prakt. Vrach., No. 25, 1903) presents an interesting case in which this subdivision is fully borne out by clinical experiences. The disease began in a woman, 49 years old, with pain in the throat, difficult deglutition, general malaise and headache. There was also considerable tenderness, congestion and swelling of the aryepiglottic ligaments. The condition did not yield to routine treatment and grew considerable worse. The patient became very hoarse, dyspneic, and suffered intense pains at every effort to swallow. Laryngoscopically the epiglottis was found so swollen as hardly to be recognized; it was impossible to make out the condition of the vocal cords. Under treatment with compresses, etc., some improvement was obtained and this continued for some time. However, with the local improvement there appeared gradually a condition that showed systemic infection—pain and feeling of heaviness in the head, tinnitus aurium, general weakness, inability to stand erect. The pulse, though normal in rate, was quite weak. From time to time attacks of fainting. In the course of a couple of weeks the condition grew still worse—the headache and noise in the ear became intolerable, and to these were also added hallucinations of sight and hearing of a very pronounced character. This continued for a week, and then disappeared without leaving a single trace. The author in

discussing this case leans to the view that the affection was one of a general and not of a purely local nature; and it must have been of an erysipelatos character, because of the rapid and enormous swelling of the epiglottis, as well as the presence of a gray exudate, which disappeared, however, in the course of one day, leaving a marked erosion, which lasted for quite some time. The course of the disease after the disappearance of the local symptoms, mental dulness, hallucinations of sight and hearing, point to some systemic infection similar to that observed in typhoid, grippe and erysipelas. According to Massei primary erysipelas of the larynx is not to be diagnosed necessarily from the presence of cutaneous erysipelas anywhere else as it may appear without the latter. When Senator, in 1888, delivered an address on the so-called primary phlegmar of the pharynx Virchow pointed out that this was not an independent disease but a septic affection often in connection with puerperal sepsis, while Guttman has called attention to its similarity to an erysipelatos process. The author also mentions the general prevalence of erysipelas in the locality where the patient lived as well as the surrounding unhygienic condition that would still strongly substantiate his view as to the erysipelatos character of the case in question.

Embolism of Central Artery of Retina Following Paraffin Injection Into Nose.—A careful review of the literature reveals the fact that serious complications following the supposedly harmless injection of paraffin are not very infrequent. L. M. HURD and W. A. HOLDEN (Med. Rec., July 11, 1903) report an interesting case in which sudden blindness of one eye occurred a few minutes after such an injection for the improvement of the appearance of a nose after two previous successful injections had been made upon the same patient. A little ecchymosis appeared about the end of the nose indicating that a vein had been punctured. An immediate examination of the eye showed that the inferior branch of the arteria centralis was bloodless and the superior branch nearly so. An attempt was made to dislodge the embolus and force it forward into one of the branches. To accomplish this the heart was stimulated and the peripheral vessels dilated. The eyeball was pressed back into the orbit as far as possible to completely empty the ocular vessels and then by suddenly releasing it, it was hoped that the embolus might be drawn on by suction. This was unsuccessful and there was no subsequent improvement in the vision of that eye. It is, of course, difficult to explain how an embolus could get from a systemic vein into the central artery without being caught in the capillaries of the pulmonary circulation.

THERAPEUTICS.

Detection of Phosphorus in Oil.—It is a well-known fact that oils containing small amounts of phosphorus, such as are used for internal administration, rapidly lose their efficacy when exposed to air and light, owing to oxidation. A simple method to estimate the amount of phosphorus, such as is given by W. STRAUB (Münch. med. Woch., July 7, 1903) is therefore welcome. Ten cubic centimeters of the oil are simply shaken with five cubic centimeters of a five-per-cent. solution of copper sulphate. A light brown to black discoloration, owing to formation of cuprous phosphate, will result. Somewhat later all the phosphorus will pass over into the aqueous part of the mixture as phosphoric acid, which can be determined voluntarily in the usual way, if the estimation by means of the depth of color is considered too inaccurate. A solution with only 0.0025 per cent. still gives an appreciable reaction, while the officinal oil of phosphorus gives a distinct brown discoloration after three to five minutes.

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THE MEDICAL STUDENT IN THE UNITED STATES.

THE *Journal of the American Medical Association* has just published (Aug. 15, 1903) its third annual Educational Number and it is a noteworthy and commendable undertaking.

Among other features discussed, that on the opportunities for medical education is naturally one of the most interesting and the figures given are well worthy of presenting. They say that the number of medical students in the United States for the year ending June 30, 1903, was 27,615. Of this number 24,930 were at the regular schools, 1,498 at the homeopathic, 848 at the eclectic and 339 at the physio-medical and nondescript schools. There was an increase in the attendance at the regular schools of 52 over last year, and an increase of 1,094 over the year previous—1901. In the homeopathic schools there was a decrease of 119 below that of 1902, and a decrease of 185 since 1901. The eclectics have increased in the number registered. This past year there were 848 registered, against 765 of the preceding year, and 664 in 1901, showing an increase of 83 over 1902, and 184 over 1901. Those in attendance at the physio-medical and nondescript schools numbered 339, an increase of 98 over last year, and 115 over 1901. The comparative table that they present is as follows:

TABLE OF MEDICAL COLLEGE ATTENDANCE.

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med. and Nondescript.	Total.
1880...	9,776	1,220	830	...	11,826
1890...	13,521	1,164	719	...	15,404
1900...	22,710	1,909	552	...	25,171
1901...	23,846	1,683	664	224	26,417
1902...	24,878	1,617	765	241	27,501
1903...	24,930	1,498	848	339	27,615

Speaking of graduates, they show that the total number of graduates in medicine for the year ending June 30, 1903, was 5,698, an increase of 699 over the preceding year. This is an increase of only 254 over the number of graduates for the year ending June 30, 1901. The decrease in the number of graduates in 1902 is assigned by the editor to the increased length of course of study and increased requirements by State boards. This decrease was considered by Dr. Simmons, in 1902, as only temporary, which is proving to be true. However, the normal condition as regards the number of graduates to the number of students registered has probably not yet been reached, for a very large number of the medical schools adopted the four years' course during the last three years. The statistics on this point are as follows:

TABLE OF MEDICAL COLLEGE GRADUATES.

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med. and Nondescript.	Total.
1880...	2,673	380	188	..	3,241
1890...	3,853	380	221	..	4,454
1900...	4,715	413	86	..	5,214
1901...	4,879	387	148	30	5,444
1902...	4,498	336	138	27	4,999
1903...	5,088	420	149	41	5,698

It is a pleasure to note that the number of medical colleges has decreased. The total number of medical colleges in the United States which grant the degree of M.D. is 154. Of these 121 are regular, 19 homeopathic, 10 eclectic, 3 physio-medical, and 1, the National Medical College of Chicago, nondescript, this institution advertising to teach not only according to the tenets of the four "schools" mentioned, but also osteopathy. In addition to the above, there are three schools which give instruction in the first two years' work. In other words, there are 157 institutions devoted to teaching medicine in the United States.

The number of medical schools, including for comparison the same statistics for the years 1880, 1890 and 1900, is given as follows:

COMPARATIVE TABLE OF MEDICAL COLLEGES.

Year.	Regular.	Homeopathic.	Eclectic.	Physio-Med. and Nondescript.	Total.
1880...	72	13	6	..	90
1890...	93	14	9	..	116
1900...	121	22	8	..	151
1901...	124	21	10	4	159
1902...	121	20	10	4	155
1903...	121	19	10	4	154

An important and far-reaching feature of this statistical study concerns the location of colleges and their clinical advantages, and the ratio of schools to the population. The figures gathered by Dr. Simmons are worthy of the most careful consideration. He says that it is acknowledged by all who have given thought to the subject that a town of less than 50,000 inhabitants cannot except under unusual circumstances, supply the clinical advantages that third and fourth-year students require. Yet the fact is there are thirty medical colleges located in towns of less than 50,000 that confer the degree of M.D. Ten of these schools are in towns of between 30,000 and 40,000, two in towns of between 20,000 and 30,000, six in towns of between 10,000 and 20,000, and nine in towns of less than 10,000.

Concerning the ratio of schools to population he shows that there are 14 cities containing 4 or more schools each, and these cities contain 84 of the 154 schools. Below is a table of these cities, with population, number of schools and ratio of population to each school. The population in each instance is based on the census report for 1900. It is quite probable that the population of all of these cities has increased, but, if so, the relative increase is possibly about the same. It will be noticed that New York has the fewest medical schools in proportion to its population, and that Chicago has the distinction of having the largest number of medical schools of any city in the United States.

TABLE OF RATIO OF COLLEGES TO SIZE OF CITIES.

City.	Population.	Number of Schools.	Ratio of Pop. To Each School.
Dallas.....	42,638	4	10,659
Nashville.....	80,865	5	16,173
Kansas City.....	163,752	6	27,292
Louisville.....	204,731	7	29,247
Indianapolis.....	169,164	4	42,291
Baltimore.....	508,957	8	63,619
San Francisco.....	342,782	5	68,556
Washington.....	278,718	4	69,679
Cincinnati.....	325,902	4	81,475
St. Louis.....	575,238	6	95,873
Chicago.....	1,698,575	14	121,326
Boston.....	560,892	4	140,223
Philadelphia.....	1,393,697	6	231,616
New York.....	3,437,202	7	491,029

A complete discussion of this most elaborate study would lead to many interesting conclusions. One that strikes the practitioner concerned in the higher education of the young medical student is that the element of ignorance of his opportunities is no longer a bar to the best. The medical student of the future chooses his place of study with his eyes wide open to what there is to be found in the country: May this be the means of

elevating the entire mass of institutions in their laudable competition to give the best.

A NEW ERA IN CHLOROFORM ADMINISTRATION.

THE stubble of a luxuriant corn-field is troublesome to uproot. It taxes the farmer's efforts in direct proportion to the strength and length of the stalk. It may or may not have borne good fruit. So, precisely, it is with the field of anesthetics.

Therefore, all laudable commendation upon the efforts of the chloroform committee of the British Medical Association! Its second report—1902-1903—brings the cheering news that definite progress is being made.

It cannot be amiss to glance at some of the stubble which this worthy body has encountered and which is pointed out not in any spirit of criticism, but simply to show how much chaff and how little grain constitutes the crop of our knowledge, even up to the present moment. Of diverse, divergent and dissenting opinions we have indeed a full crop.

The latest and undoubtedly one of the very highest American authorities is Brewer's Text-book of Surgery. It is crisp from the press and pregnant with the new and vigorous thought of its maker. In speaking of the administration of chloroform it says that the drug may be given upon a folded handkerchief held "two or three inches above the mouth to allow a generous admixture of air. . . . An effort should be made to give ten per cent. of the vapor of chloroform and ninety per cent. of air." Very distinct recognition is given the fact that danger arises from a too high concentration of the vapor, suddenly administered.

In Park's Surgery it is stated in italics that chloroform should always be given with ninety-five per cent. of air.

In the American Text-book of Surgery the administration of chloroform is described as follows: "A towel may be placed over the patient's mouth and be kept moistened by chloroform, drop by drop, or about a half teaspoonful should be poured upon a napkin and held about an inch from the face. . . . Experiment has shown that the vapor is inhaled under the condition just stated in the strength of five-per-cent. admixture with air, which is a proper proportion."

The eminent English authors, Rose and Carless, state that, "Much controversy has arisen as to whether the heart is ever directly affected by the drug or whether the symptoms are not due to

primary failure of the respiration. The experimental evidence on the subject is of a very conflicting nature and it is impossible as yet to consider the question solved. The Scotch school, headed by Syme and Lister, maintains that the breathing alone need be watched. Many surgeons and anesthetists oppose this view. . . . The chief points to be attended to are regularity of dose and full admixture with air so that not more than *four per cent.* of the vapor is inhaled."

Among these standard authors there is to be noted a variation from about ten to about two per cent. All recognize the importance of free dilution with air. None are prepared to instruct in any method which shall determine the percentage in more than a haphazard fashion.

We have passed the transitional stage, thanks to the efforts of the members of the committee of the British Medical Association, and should soon be in possession of all practical data to utilize the new methods and the apparatus desired, and methods endorsed by Sir Victor Horsley are not to be passed over lightly.

From a practical standpoint the conclusion in this report is that chloroform should be administered in quantities varying between 0.5 per cent. and two per cent. "An average of one per cent. is sufficient for the induction and maintenance of narcosis." The chloroform should be given through an inhaler so constructed that the delivery shall be continuous and shall be indicated on a percentage scale.

Although in this country the giving of ether has received a tremendous impetus since the multiplication and general adoption of the nitrous-oxide-ether inhaler, because this instrument has almost entirely done away with the disagreeable elements in ether taking, the field is not yet closed to chloroform.

Those who read the report will find a long list of operations which were successfully carried on with the aid of Mr. Vernon Harcourt's apparatus, in which the air to be inspired derives its chloroform vapor from being drawn over the surface of the drug. This differs from Dr. Junker's apparatus, in that his method consists in blowing air *through* the chloroform. The heat rendered latent by this procedure introduces a variation in the quantity of gas taken by the air. By instruments of exact measurements the modes of administration of anesthetics have been brought out of chaos to the precision required of a precise age. We congratulate the chloroform commission and its report.

ECHOES AND NEWS.

NEW YORK.

The Eye and Ear Infirmary.—Dr. Richard A. Derby, of the Board of Directors of the New York Eye and Ear Infirmary, announces that the gift of the late William C. Schermerhorn to the infirmary of a building to be devoted solely to the treatment of diseases of the eye has been supplemented by a gift from the daughters of Mr. Schermerhorn of money for the equipment of the building with all the necessary surgical appliances and furnishings.

Barber Regulations.—Copies of Section 179 of the revised Sanitary Code, which includes the new regulations for barbers, were sent out last week. There are eleven of these rules. Here they are: Barbers must wash hands thoroughly with soap and hot water before attending any person.

No alum or other astringent shall be used in stick form. If used at all, to stop flow of blood, it must be applied in powdered form.

The use of powder puffs is prohibited.

No towel shall be used for more than one person without being washed.

The use of sponges is prohibited.

Mugs and shaving brushes shall be thoroughly washed after use on each person.

Combs, razors, clippers and scissors shall be thoroughly cleansed by dipping in boiling water or other germicide after every separate use thereof.

No barber, unless he is a licensed physician, shall prescribe for any skin disease.

Floors must be swept or mopped every day and all furniture and woodwork kept free from dust.

Hot and cold water must be provided.

There is no rule to prevent a barber from sticking his thumb in a man's jaw to pull the surface smooth for shaving, but President Lederle, of the Health Board, says that it is understood that this practice must be discontinued. The regulations also advise customers to have their own brushes, combs, razors and shaving cup. The rules are to be hung in a conspicuous place in every barber shop, and violators are threatened with severe punishment.

Obituary.—Dr. John Gleises, of New York, who was spending the summer at Brookside, died August 14. He was fifty years old and leaves two sons.

PHILADELPHIA.

Chickenpox a Notifiable Disease.—Chickenpox has been placed on the list of diseases that physicians must report to the Board of Health. On numerous occasions during the present prevalence of smallpox, physicians summoned before the Board for failure to report the names of patients suffering from that disease, have excused themselves with the plea that their diagnosis was chickenpox. In order to prevent this shielding of smallpox patients, the Board has decided that chickenpox, as well as smallpox, must be reported.

Results of the Ball Park Accident.—A general inspection of all places of amusement, including theaters and outdoor resorts, has been begun by the building inspectors. The larger part of the outdoor stand at the Philadelphia Ball Park will have to be rebuilt before games are allowed. As result of the recent accident twelve people have died. Donations are being made to the Samaritan and St. Luke's hospitals to aid in replenishing supplies which were all used in caring for those wounded at the accident.

Woman's Hospital.—Plans for the new Woman's Hospital have been filed. It is to be a six-story building of granite, limestone, and terra cotta.

CHICAGO.

Chicago's Milk Supply Improving.—Out of 760 samples of milk and cream analyzed in the Laboratory during the week 60 were found below grade. Among these 760 samples from all sources there were 112 taken at the trains—before the milk had come into the possession of the city dealer. Out of these 112 samples four were found below the standard of butter fat and 40 below the standard of total solids. Thus, while the per cent. of samples below grade from all sources was only 7.9 per cent. the proportion of samples below grade in the milk and cream direct from the farmer, and before the wicked city dealer had an opportunity to tamper with it, was nearly 40 (39.2) per cent. These figures are the sufficient refutation of an assertion made with increasing frequency since the enforcement of the new milk ordinance has begun to disclose the principal and primary offenders. If the State Pure Food Commission will take care of the farmers the Bureau of Milk Inspection will continue its care of the city dealers.

Typhoid Fever Statistics.—Although the anticipated increase of typhoid fever has resulted to quite as great an extent as was feared (from the pollution of the city water several weeks since), it has not yet been reflected in the mortality. Nearly all hospitals report an increase of cases—the net figures being about 28 per cent. greater than for the previous week. But the typhoid deaths reported are decreasing—only 8 during the week as against 11 the week before and 45 in the corresponding week of last year. Since July 1 the total typhoid deaths reported have been only 55 as compared with 133 between July 1 and August 16, 1902. With a higher temperature and the return of summer vacationists, however, the typhoid deaths will undoubtedly increase.

Smallpox on the Increase.—Ten new cases of smallpox were discovered and removed to the Isolation Hospital. Dr. Spalding, the Chief Medical Inspector, again dwells upon the fact that none of these had ever been vaccinated and that seven of the number were children ranging in age from two months to six years. Two of these died Saturday morning. "Why," asked Dr. Spalding, "shouldn't the law require parents to have their children vaccinated before the age of six years? Certainly these babies have as much right to live as children at the school age. The law requiring all children to be vaccinated before entering the schools has protected absolutely every school child from smallpox for a period of more than ten years. No vaccinated school-child has ever had smallpox. There should be a law passed without delay requiring parents under penalty to have their children vaccinated before the age of six months."

Mortality Statistics.—The week's mortality rate is again remarkably low. The 483 total deaths reported represent an annual rate of only 13.36 per 1,000 of population. This is 6 per cent. less than the rate of the previous week; 8.7 per cent. less than that of the corresponding week of last year and nearly one-fifth—18.3 per cent.—less than the average August rate of the previous decade.

GENERAL.

Yellow Fever in Texas.—In view of the appearance of yellow fever at Victoria, Tex., about 70 miles from Monterey, on the line of the Monterey & Gulf Railway, the quarantine established here has been made more rigorous by the appointment of an additional force of guards by the State authorities.

Both the State and Marine Hospital Service physicians are at present at Monterey investigating the rumor to the effect that yellow fever exists in that vicinity. The consensus of opinion is that a quarantine against Monterey will be established, and should such action be taken, it would mean a temporary tie-up of railway traffic.

The Prevention of Malaria in Hongkong.—A series of reports and minutes written between the years 1900 and 1903, says the *British Medical Journal*, by Dr. Thompson, of Hongkong, shows some of the results obtained by that colony in its campaign against mosquitoes. Dr. Thompson on his return from England in 1900 began a research into the prevalence of mosquitoes and malaria in the colony of Hongkong and in the new territory, and, after a careful examination of those districts, made a plan on which were depicted the various areas where mosquitoes bred. Many places were found suitable for the breeding of the insects, and of those the nullahs were the worst, one especially above Ripon Terrace passing the end of Nethersole Hospital being heavily infected with mosquito larvae. Other areas, quite close to the Government Civil Hospital, the author thinks supplied *Anopheles* mosquitoes for the transmission of malaria from person to person in the hospital, and this is quite consistent with the conditions so often noted in other tropical countries. A large number of external examinations of mosquitoes showed that insects of the genus *Culex* greatly predominated, though *Anopheles* were also not uncommon. No note is made as to the numbers of those infected with malarial parasites, and this in the light of the India work on this subject is unfortunate. As a result of the researches into the breeding areas, a series of recommendations similar to those advocated by Major Ross in Africa, and by other observers in different parts of the world, were proposed. A second visit to the areas in 1902 showed that there was a distinct improvement, and further work was advised still to better their condition. In 1903 another survey again showed fewer mosquitoes, but here it may be noted that Dr. Thompson states that the measures adopted have only been temporary, and to be successful must be continuous till the nullahs are properly drained. It is a pity that no mention is made of any reduction or otherwise in the prevalence of malaria as a result of those measures, and it would be interesting in the future to have this point investigated. But Rome was not built in a day, and Hongkong is to be congratulated on what it has already done, and the hope may be expressed that it may go on energetically and do much more.

Oysters and Typhoid Fever.—Dr. Bulstrode's official report on the oysterborne outbreaks of enteric fever which followed certain mayoral banquets last year, although anticipated by full reports by local medical officers of health, will be read, says the *British Medical Journal*, with great interest, if for no other reason because it coordinates the particulars contained in previous accounts, and gives a complete survey of the evidence on the strength of which these outbreaks were attributed to contaminated oysters from Emsworth. The title of Dr. Bulstrode's report is eminently cautious. It deals with "alleged" oysterborne enteric fever. The conclusion of the matter in the report is almost equally cautious, as will be seen from the following quotation (the italics are ours): "The foregoing narrative of facts would seem to establish the strongest possible presumption that oysters which had been deposited for a time at Emsworth have caused the outbreak of enteric fever and other illness which

followed the mayoral banquets on November 10 at Winchester and Southampton. A perusal of Dr. Bulstrode's admirable account of these outbreaks would, we venture to think, justify a more confident expression of opinion; and as this is a matter on which urgent administrative action and not merely an academical decision depends, and as in preventive medicine mathematical demonstrations of causative relationships are seldom if ever attainable, the words "seem" and "appear" which recur in the statement of conclusions in the report might probably have been omitted without sacrifice to accuracy, and with considerable practical gain. That this is so is shown by Dr. Bulstrode's own summary of the facts. Two mayoral banquets occurred on the same day in separate towns several miles apart. In connection with each banquet similar illnesses occurred, attacking approximately the same percentage of guests, and at corresponding intervals. At both banquets those who did not partake of oysters escaped, and all the guests who acquired enteric fever, and approximately all who suffered from other illness did partake of oysters. The oysters in question constituted the only article of food which was common to the guests attacked; and these oysters were all derived directly from the same source. Furthermore, oysters from the same source were at the same time, and in other places, proving themselves competent causes of enteric fever; and, we may add, these oysters were shown to be liable to serious contamination by sewage. The incidence of sickness on those who were guests at the two banquets is an interesting point. At Winchester 62 out of 134 guests suffered from some form of illness. Only two of these did not eat oysters. Ten of the guests had enteric fever, and all these had oysters. At Southampton there were 132 guests. Of these 55 became ill, out of which number 54 took oysters; 11 acquired enteric fever, all of whom took oysters. Dr. Bulstrode's remarks on the importance of epidemiological study of the origin of these outbreaks, and on the undesirability of trusting to bacteriological evidence alone, are eminently judicious. The whole report is an excellent example of careful and exhaustive inquiry, which may serve as a model to other investigators."

Patent Medicines in Germany.—The Federal Council of the German Empire, says the *British Medical Journal*, has drawn up a code of regulations regarding the sale of patent medicines in Germany, and has requested the Governments of the several States to issue orders, on the basis of its proposals, to come into force on January 1 next. The State of Hamburg has already acceded to this request, Prussia will shortly do so, and the other Federal States are likely to follow suit. Various well-known "panaceas" are said to be mentioned in the regulations among those which are to be prohibited.

The Medical Profession in France.—The *British Medical Journal* reports the case of a French doctor who was brought before a police court recently and sentenced to six months' imprisonment for petty larceny. When asked what had driven him to theft his reply was, "Hunger." He was dealt with as a first offender, and his friends have, we are pleased to say, established him in a respectable practice in a small town. The case has been used by the *Temps* and other newspapers as a text for disquisitions on the overcrowding of the learned professions in France. France has already, it is pointed out, too many doctors. Some statistics lately published by M. de Lavarenne show very clearly that this is the case. During the twenty-five years, 1876 to 1901, the

date of the last medical census published, the number of doctors and *officers de santé* increased from 14,376 to 17,108. This increase was altogether disproportionate to the growth of population, for while in 1876 the ratio of practitioners to people was 2.90 per 10,000, in 1901 it was 4.08. These figures are still more instructive if we examine the distribution of practitioners throughout the country. In certain regions, especially in the departments of the Basses Alpes, Aveyron, Cantal, Charente, Corrèze, Creuse, Dordogne, Lot et Garonne, Haute Savoie, Tarn et Garonne, which have been greatly impoverished by a series of agricultural crises, the number of practitioners has diminished. On the other hand, in certain prosperous departments the number has greatly increased. Thus in the Bouches du Rhône there were 434 doctors in 1901 as against 370 in 1876; in the Nord 656 as against 456; in the Seine Inférieure 531 as against 412; in Seine et Oise 343 as against 244. The increase shown by these figures is very considerable, but in the Seine department it is far greater. While in 1876 there were 1,606 practitioners, in 1901 there were 3,281, the number having doubled itself in the twenty-five years. Of the 17,108 doctors 9,221 practised in rural districts having a total population of 27,595,528, while there were 7,887 in towns with an aggregate population of 11,366,417. In the towns themselves the distribution of practitioners was very unequal. Paris had 2,892 doctors for its 2,714,068 inhabitants, a ratio of 10.65 per 10,000. The cities of 100,000 to 492,000 inhabitants, with an aggregate population of 2,636,032, had among them 1,875 practitioners, a ratio of 7.4 per 10,000. On the other hand towns of 30,000 to 100,000 inhabitants which together made up a population equal to that of Paris had no more than 1,487 doctors, that is to say, 5.47 per 10,000. The proportion became less as the population of towns diminished. Thus those of 20,000 to 30,000 inhabitants, having an aggregate population of 1,297,058 had 635 practitioners—4.89 per 10,000; and the towns of 10,000 to 20,000 only had among them 1,016 doctors—5.08 per 10,000. In the country the average proportion of practitioners to populations was 3, while in Paris it was 11 to 10,000. From a recent unofficial estimate we learn that the total number of medical practitioners in France in the present year of grace is 18,735, being an increase of 1,627 as compared with 1901.

Deaths in Europe.—Among the members of the medical profession in foreign countries who have recently died are Dr. Oliveira Monteiro, Professor of Medicine in the Medical School of Oporto; Dr. Vacher, Mayor of Treignac, formerly Member of the French Chamber of Deputies, author of numerous works dealing with social economy and hygiene, aged seventy-one years; Dr. Bele, sometime Senior Surgeon to the Hospital of Maus, aged eighty-two years; Dr. Rudolf Trzebitzki, Professor of Surgery in the University of Cracow, aged forty-one years; and Dr. Julien Bouglé, Surgeon to the Paris hospitals, and one of the editors of the *Archives Générales de Médecine*, aged thirty-five years.

The Continental Anglo-American Medical Society.

—The annual luncheon of the society was held in Swansea, at the Hôtel Metropole, on Thursday, July 30th, and was very successful in every way. Dr. Freeman (San Remo) occupied the chair and twenty-seven members and their guests were present, including Dr. T. D. Griffiths (the President of the Association), Dr. Frederick Roberts, Mr. Mayo Robson, Mr. Walter Whitehead, Mr. Ward Cousins, Mr. Arbuthnot Lane, Mr. Edmund Owen, Sir Patrick Manson, Professor Adami, Dr. F. Burghard, Mr.

Sheen, Professor Herman Senator and Dr. Reinhold Ledermann (Berlin), Dr. H. D. Rolleston, Mr. C. D. Marshall, Dr. Dawson Williams, Dr. Irving Cameron (Toronto), Professor Albert Saundby, Dr. Logan Turner, Dr. Creasy, Dr. Leigh Canney (Assouan), Dr. Michael Foster (San Remo), Dr. Sandwith (Cairo), Dr. Samways (Mentone), and Dr. Leonard Robinson (Paris). The speeches were short, as Mr. Mayo Robson had to leave early to give the Address in Surgery. After the Chairman had proposed the usual loyal toasts, Mr. Edmund Owen, in happy speech proposed "The Health of the Society," and said what a good thing it was to learn to know each in this friendly way, and thus become acquainted with colleagues abroad, who would do the best for the patients and even attend to the embalming or burial if necessary. Dr. Sandwith, of Cairo, returned thanks and hoped the Society would see many of the present company at the International Congress of Tuberculosis to be held in Paris in October, 1904. Dr. Michael Foster proposed the health of the guests, to which Dr. Frederick Roberts replied, saying what pleasure it had given him to be present, and he hoped to make the acquaintance of the remaining one hundred members at the dinner in Paris in 1904, when the Society will be, so to speak, at home with their own chef. A vote of thanks to the chair terminated the most enjoyable meeting.

American Association of Obstetricians and Gynecologists.—The American Association of Obstetricians and Gynecologists will hold its sixteenth annual meeting in the Northwestern University Medical School Building, Chicago, Ill., Tuesday, Wednesday and Thursday, September 22, 23 and 24, 1903, under the presidency of Dr. Lehman H. Dunning, of Indianapolis. The Auditorium Hotel Annex has been selected for the headquarters of the association, the management of which should be addressed concerning rooms and rates. Dr. J. B. Murphy, Reliance Building, 100 State street, is the chairman of the committee of arrangements and will gladly furnish any information to members and guests upon application. Dr. Murphy also can be addressed, relating to accommodations, at the Auditorium Annex, or other hotels. The following list of papers has been offered: 1. President's address, by L. H. Dunning, Indianapolis; 2. Supravaginal Amputation for Fibroids, with report of cases, by H. E. Hayd, Buffalo; 3. Traumatic Rupture of Intestines Without External Marks of Violence, with report of cases, by Geo. S. Peck, Youngstown, O.; 4. Ectopic Pregnancy, H. D. Ingraham, Buffalo; 5. Relationship of the Colon to Abdominal Tumors, by J. F. Baldwin, Columbus; 6. Cysts of the Kidney Resembling Ovarian Tumors, with cases, by Rufus B. Hall, Cincinnati; 7. Total Extirpation of the Vagina for Carcinoma, by Charles G. Cumston, Boston; 8. Surgery of the Female Bladder and Urethra, by John B. Murphy, Chicago; 9. Surgery of the Ileocecal Valve for Non-malignant Disease, by N. Stone Scott, Cleveland; 10. The Curette in Postpartum Infections of the Uterus, by D. Tod Gilliam, Columbus; 11. The Use of Veratrum Viride in Surgical and Obstetrical Practice, by Chas. L. Bonifield, Cincinnati; 12. Should the Uterus and Ovaries be Removed in Cases of Double Pyosalpinx? by C. C. Frederick, Buffalo; 13. Placenta Previa, E. T. Abrams, Dollar Bay; 14. The Limitations of Cesarean Section, by E. Gustav Zinke, Cincinnati; 15. Further Notes on Ovarian Grafting, by Robt. T. Morris, New York; 16. Conservative Surgical Treatment of the Uterine Adnexa, by A. P. Clarke, Cambridge; 17. The Value of Vaginal Cesarean Section, M. Stamm, Fremont, O.; 18. Hysteria as a Result of Chronic Atrophic Parametritis; a

Contribution to the Study of Nervous Disturbances, by W. A. Freund, Berlin; 19. Anesthesia in Abdominal Surgery, by J. J. Gurney Williams, Philadelphia; 20. The Technic of Gynecological Work, by A. Vander Veer, Albany; 21. Emergency Abdominal Surgery at the Patient's Home—a Demonstration, by W. G. Macdonald, Albany; 22. Discussion of Common Causes of Death Following Pelvic and Abdominal Operations, by Joseph Price, Philadelphia; 23. The Indications and Technic of Vaginal Drainage for Suppuration in the Pelvis, by A. Goldspohn, Chicago; 24. Intravaginal Elongation of the Cervix, by M. Rosenwasser, Cleveland; 25. Appendicitis, by Walter P. Manton, Detroit; 26. Chloroform in Labor, by Edwin Ricketts, Cincinnati; 27. Study of the Symptoms and Surgical Treatment of Intestinal Perforation in Typhoid Fever, by W. D. Haggard, Nashville; 28. Symptomatology of the Pelvic Musculature, by Hugo O. Pantzer, Indianapolis; 29. Palliative Treatment of Cancer of the Cervix, by Walter B. Chase, Brooklyn; 30. Abdominal Versus Vaginal Hysterectomy in Carcinoma Where the Radical Operation is Warranted, by John B. Deaver, Philadelphia; 31. Hysterectomy in Infectious Diseases of the Uterine Appendages, by H. C. Deaver, Philadelphia; 32. The Scope and Limitation of Myomectomy in the Treatment of Fibroid Tumors of the Uterus, by L. S. McMurtry, Louisville; 33. In Memoriam—William E. B. Davis, L. S. McMurtry, Louisville; 34. Penetrating Gunshot and Stab Wounds of the Abdomen, with report of cases, by John Young Brown, Jr., St. Louis; 35. Report of Abdominal Section During Pregnancy, by X. O. Werder, Pittsburg; 36. Shortening the Round Ligaments by the Blunt Hook Method, by H. W. Longyear, Detroit; 37. The Gilliam Operation; a clinical contribution, by Edward J. Ill, Newark; 38. Report of a Fourth Consecutive Successful Operation for Acute Perforated Gastric Ulcer, with General Infection of the Peritoneal Cavity, by Henry Howitt, Guelph, Ont.

During the meeting Dr. J. B. Murphy, by request, will hold a clinic, at which some demonstrations of special interest will be made. Dr. Macdonald will give a demonstration of Emergency Surgery at the Patient's Home, showing operator, assistants, nurses and equipment in full detail, immediately preceding Dr. Murphy's clinic. All members of the medical profession are cordially invited to attend the scientific sessions.

He's Got It Reduced to a Science!—He was a doctor of the advanced school. He laid his fingers on my pulse, and, with his watch in his hand, gave it a fair start and observed it carefully all of the way around.

"Strong, 74," he said, in a moment. Then he consulted a card that was covered with figures and continued: "That equals 63," and he placed the number on a slate. "Put out your tongue. Good! That is 14," he said.

"Inches?" I asked.

"How is your appetite?" he inquired, ignoring my question.

"Equal to the supply."

"That makes 204," he replied.

"Can't you reduce it a little?" I asked, but failed to get his attention.

"Cold feet?"

"Yes," I answered.

"Three," he said.

"No, 2," I replied, to correct him.

He set the three under the other figures. He then placed a thermometer in my mouth, which he afterward consulted in connection with the card.

"A good 198," he said.

"Impossible," I suggested, mildly.

He wrote down the 198 and asked if I had headaches.

"Sometimes, in the morning, after being kept late at the office," I answered.

"Four," he said.

"Isn't that rather low?" I asked.

"Do you smoke," he inquired.

"Yes."

"Ten," he replied.

"No, two for 10," I said.

He put down the 10.

"Do you sleep well," he asked.

"That depends upon the baby," I answered.

"We won't consider that," he said.

"You had better call it 980," I suggested.

He added together the figures that he had placed on the slate.

"That makes 496," he said.

"Is that the amount of the bill," I asked.

"Bill?" he replied. That is the number of the prescription. I want you to know that medicine with me is no longer an experiment, for I have reduced it to a mathematical certainty. Every symptom has its number, and the sum of these numbers indicates the medicine that is needed. I have worked for fifteen years in formulating my prescriptions and perfecting the treatment, but I have it now. Your bill is \$10.

I understood that number, and left the office feeling relieved and deeply impressed by the doctor's learning.—*Harper's Bazar*.

Some New Data Concerning Smallpox and Vaccination.—Professor C. E. A. Winslow, of the Massachusetts Institute of Technology, in writing for Science, reviews Dr. Edwardes' recent work on "A Concise History of Smallpox and Vaccination in Europe," and draws some interesting conclusions of his own. He thinks the enforcement of State laws in this country requiring primary vaccination would be attended with difficulty because of certain factors in the process which it is difficult to eradicate. In the past disease was often transmitted by the "arm to arm" method, but now with our purified serum and careful scientific manipulation we have limited such transmission to erysipelas and tetanus, and these are quite often secondary infections due to somebody's meddlesome intervention. Still, such occurrences are frequent enough to make compulsory vaccination of doubtful success. The article says: "No one now supposes that a single vaccination affords absolute permanent protection, and with the increase of vaccination there must naturally come an increase of cases among the vaccinated. The experience of Leicester, on the other hand, is certainly of interest. It shows that under certain conditions the dangers of neglected vaccination may for a time be braved with impunity by a considerable portion of the community. This has been so far accomplished by prompt reporting and strict isolation of cases, and, according to the Chairman of the Public Health Committee of the town by the fact that a handful of the population, including the medical men, sanitary staff, smallpox nurses, etc., are as well vaccinated in Leicester as in any other town, so that a cordon of protected persons can at once be drawn around any case of smallpox which may occur." However, one should remember that there was some protection afforded to the inhabitants of Leicester by vaccination previous to the adverse agitation. In the epidemic of 1892-5 198 persons out of 358 attacked had been vaccinated some years before.

The article further says: "The objection made to

the hospital statistics, namely, that the deaths of the unvaccinated class are unfairly increased by the inclusion of doubtful cases, and those who have been vaccinated but show no scars, can scarcely apply to the commission's analyses. It will not, at any rate, have much weight, except with those who, like Mr. Wallace, believe that 'in this matter of official and compulsory vaccination both doctors and Government officials, however highly placed, however eminent, however honorable, are yet utterly untrustworthy.' With regard to the smallpox occurring in persons once vaccinated, there are two points to notice. In the first place, the ratio of deaths to cases is far lower than among the unvaccinated. Thus at the Leipzig city hospital in 1870-2, 99 died among 139 unvaccinated cases, 116 died among 1,504 vaccinated cases, and none among 13 revaccinated cases. Creighton and Wallace object to these statistics on the ground that the death rate thus apparent among the unvaccinated is obviously too high, because 'in pre-vaccination times the death rate (18.8 per cent.) was almost the same as it is now in the vaccinated and unvaccinated together. A single vaccination then greatly reduces the probability of an attack of smallpox, postpones it to a later period of life, and renders it less dangerous if it does ensue. To insure absolute protection revaccination is required; and its efficacy is well indicated by the experience of the Prussian army. In addition, one single bit of evidence may be adduced which is more striking, perhaps, than all the rest, the statistics of nurses in smallpox hospitals. These figures are of special interest because we have here a fairly large class of persons whose condition as to vaccination is accurately known, and who are uniformly exposed to the contagion of the disease; and the experience of two such communities is quoted by Dr. Edwardes. 'During the epidemic of 1871 there were 110 persons engaged in the Homerton Fever Hospital in attendance on the smallpox sick; all these, with two exceptions, were revaccinated, and all but these two escaped smallpox. Of 734 nurses and attendants in the Metropolitan Asylums Board Hospitals, 79 were survivors from smallpox attack—they escaped infection; 645 were revaccinated on entrance—they all escaped; 10 were not revaccinated, and the whole 10 took smallpox.' If statistics ever proved anything those quoted above prove the protective influence of vaccination. If any fact in science is certain, it is certain that a successful vaccination absolutely prevents smallpox for a period of some seven to ten years, that after that period it renders the disease less fatal, and that its complete protective effect may be renewed by revaccination."

A Municipal Milkshop.—Dr. William Robertson, medical officer of health, of Leith, Scotland, writes on the subject of municipal milkshops in an article for the County and Municipal Record, which is copied in a current issue of the *Sanitarian*. In the course of his article Dr. Robertson records the following observations: "I have always held most decided views upon the milk supply of towns, and the more I learn of the little ways of cow feeders the more strongly do I feel the need there is for a greater uniformity of action by various sanitary authorities throughout the country. That this uniformity does not exist can be demonstrated by touring different districts. . . . The fact that thousands of infants are dependent upon milk for their sustenance is a strong argument in favor of raising the level of excellence of our milk supply. I do not mean to say that the milk as it comes from the byre is always bad. There may be, and often are, in-

stances where the milk is taken into a dirty house, in which filthy dishes and foul bottles are requisitioned to store the milk. . . . Three years ago I visited St. Helens, and described in the *Sanitary Journal* what I saw at the milk depot. So impressed was I with the common-sense and educative value of the scheme that I, literally speaking, put it into my pocket for future use. Liverpool, Ashton-under-Lyne, and Battersea have now adopted the principle of feeding infants, and at each place the movement has been a signal success. Leith, as is well known, boasts of a low general death rate, but I found that the mortality among infants was unduly high. This fact was brought prominently before the local authority, and I was asked to report fully on the whole subject, and to offer recommendations to reduce the death rate among infants. A subcommittee went very fully into the report, and gave the matter most sympathetic attention. The result was a unanimous recommendation that a milk depot ought to be started. I may say I had, some weeks before, visited Liverpool, where three depots are in operation, and was able to guide the committee upon a probable line of action. When the subcommittee's recommendation came up before the whole Town Council I anticipated a revolt against the apparent attempt to municipalize a milkshop, but a very much broader view of the question was taken, and the subcommittee's recommendation was carried without a dissentient voice. To cut a long story short, a shop was taken in a central part of the burgh, at a rental of £20, and the necessary apparatus ordered. In Liverpool the operations, as I have said, are carried on on a very large scale. In one of the depots there are three large departments—one for cleaning bottles and sterilizing the milk, another for storing the milk and bottles, and a third, the front part of the shop, where the baskets are sold. In Leith the depot consists of a front and back portion. In front is the sterilizer and the shelves on which are kept the prepared bottles and baskets. The rear portion of the depot, screened off from the front, is where the bottles are washed and stored. . . . To keep down any feeling of jealousy on the part of the local cow feeders, it is my intention to take milk from them in rotation, giving each a month's supply. And as time goes on I hope to establish agencies in different parts of the burgh, so that orders may be received for the sterile milk. I think the dairymen will assist me to carry this idea into effect. What I have said refers to what one might call a tentative scheme. The success of the Leith depot is practically assured, for the medical practitioners are in entire accord with the scheme; and when the medical officer of health can claim the general practitioners as allies he can go on with his work with a very light heart and cheery confidence. In conclusion, I would only add that the effect of a milk depot to provide sterile milk for infants can neither be felt nor appreciated in a month. One must wait until the educative influence of the depot has taken root. The points that seem to appeal to parents as the result of using sterile milk are—first, that they have now no worry in making up bottles; secondly, fretful infants enjoy a rest at night in place of squirming with flatulence and pain; and, thirdly, several mothers have declared that the vomiting which was common has now almost ceased."

Financing Smallpox.—The *Times* editorially comments as follows: "Getting the smallpox in one's home town and exploiting its eruptive and succeeding stages elsewhere at the expense of reluctant Samaritans who, like the 'flowers that bloom in the spring,

tra-la,' have nothing to do with the case except what is forced on them as a matter of self-protection, is a proceeding which is now exciting considerable municipal and legal attention in Connecticut, occurrences of the sort having of late been rather frequent there. A mother and daughter living in Stamford visited the neighboring town of Norwalk a year or so ago, and while there blossomed forth with unmistakable stigmata of the disease. They were promptly taken in hand by the authorities, sequestered, and in the course of several weeks doctored into health and sent home. All this involved expense, the amount considerably exceeding a thousand dollars, and this the Norwalk Selectmen asked the Stamford Selectmen to pay. No attention was given to the requisition. It was received in silence, which in this case did not give a cent. But as time wore on it became the subject of increasing proximity of correspondence between the cities, bringing the matter no nearer to a settlement. Stamford flatly said it wouldn't pay; Norwalk referred the matter to its Town Council, who looked into it with the penetrating eye of a magpie looking into the hollow end of a bone, and decided that it constituted a valid ground of action. A suit was therefore brought, and it will be argued as soon as the courts reconvene after their summer vacation. The case will, then, no doubt, be considered in all its legal and perhaps its moral and ethical bearings, affording a precedent to rule future ones as they may arise. They have cropped up quite frequently of late, particularly in the respected Commonwealth named, and it is quite time that some authoritative judicial decision concerning them should there be placed on record. Stamford has had its own experience of caring for cases originating elsewhere, and has spent considerable money in looking after them. Citizen George Francis Train came there awhile ago from his New York abode and proceeded to break out all over, like a branch of the red, red rose, as if he had deliberately timed his arrival to synchronize with that crisis. He didn't want to be sequestered, or treated, but they took him in hand all the same and expended \$1,900 in bringing him around to his normal non-contagious condition. He had spent many years of his life, then descending into its wintry period not void of a withering picturesqueness, in vindicating the principle that the peanut was a sufficient cure for all bodily and many spiritual ills, and in pursuance of his mission had consumed large quantities of this trivial but nourishing subterranean growth on the open-air benches of Madison Square. Thither, as year followed year, the children and the sparrows flocked to see him. It involved a surrender of his theory to admit that any other treatment in any crisis was necessary, and he only submitted to it under protest. None the less some of the Stamford Selectmen think that the town has a good case against the metropolis for reimbursal of its outlay and favor its vigorous prosecution. In their opinion, New York has no right to unload her smallpox cases, in full or partial development, on neighboring towns; moreover, she is rich and can afford to pay. Probably we have not yet heard the last of it—if we are to pay doctors' and nurse's bills for anybody involved in like conditions. The spectacular citizen and ideologist named is as well worth it as another, and even the vigilant obstinacy of our present Controller ought to relax when the bill comes before him, if indeed that stage of the proceeding be ever reached. There seems a measure of inconsistency on the part of the Stamford authorities in refusing to pay Norwalk's bill while suing another town for

another one incurred under the same conditions. The best culinary authorities have always held to the principle that what was sauce for the goose was also suitable basting fluid for the gander, and if Stamford is bent on getting back what it has expended in this way to the point of going to law about it it is difficult to see how she can reasonably stand up against Norwalk's contention and refuse to liquidate all the items of the smallpox account between them."

Genius and Eyestrain.—A recent leading article in *The British Medical Journal*, from one who knew some of the men, is of interest. We give it in full: "Lawrence Sterne was, in the words of Sir Thomas Browne, 'knaved out of his grave,' and his body was recognized on a dissecting table at Cambridge. The fleshly garment of the author of *Tristram Shandy* was doubtless dealt with as the chance treasure trove of the resurrection man; the idea of anatomizing genius had not been conceived in his day. Though Dryden has said that 'great wits are sure to madness near allied,' the intimate connection between genius and disease does not seem to have been suspected till comparatively recent times. It is true that poetry is said to have been defined by the French medical philosopher, Cabanis, as a disease of the small intestine, but no one seems to have succeeded in verifying the reference. Nowadays genius is, in Tennyson's elegant phrase, 'ripped up like a pig,' or rather it is scientifically dissected. Great men are everywhere knaved out of their graves. Sir Thomas Browne himself has shared the common lot; Beethoven's ear, Gayarre's larynx, the skulls of Cromwell and Richelieu, to mention but a few, have been scrutinized, probed, and measured. A book has been written on Gambetta's brain; the bones of St. Cuthbert and St. Thomas of Canterbury have been the subjects of anatomopathological research. In default of material for dissection, medical commentaries are written on the infirmities of genius—on Cervantes's cardiac dropsy, on Swift's 'vertigo,' on Napoleon's epilepsy and the 'itch' which is said to have afflicted him, on St. Teresa's hysteria, on Jean Jacques Rousseau's genito-urinary troubles, on the pathological phenomena noted or inferred or suspected in Columbus, Petrarch, Tasso, Schopenhauer, and Goethe. That interesting collection of literary necropsies, *La Chronique Medicale*, ably edited by Dr. Cabanès, is a mine of information as to the illnesses of celebrated persons. So great is the interest taken in the physical infirmities of genius—using that word in the widest sense—that an elaborate monograph was written by Dr. Toulouse on Zola's constitutional peculiarities during the life of that writer. It is scarcely fair, perhaps, to class Dr. George M. Gould's *Biographic Clinics* with the works of the literary body snatchers to which reference has been made. While their object is merely the satisfaction of curiosity, his book is an important contribution to science. His study of the mysterious sufferings which nearly wrecked the lives of Carlyle, Darwin, Browning, Huxley, and De Quincey has been made with a serious purpose. Convinced of the far-reaching constitutional effects of eyestrain, he wished to illustrate his teaching by a series of striking examples. He has certainly succeeded in drawing clinical pictures of the greatest historical interest, which immensely increase the admiration we feel for the great men who achieved so much under conditions of difficulty and disability that would have crushed ordinary men. We frankly say that we do not think he has established his case by scientific proof; but this fail-

ure can scarcely be laid to his charge, for there is too slight a basis of fact on which to rest a solid conclusion. The evidence largely consists of the illustrious patients' own testimony, which, moreover, is given in casual remarks without any particular sense of responsibility. It must be borne in mind that Carlyle and De Quincey were markedly neurotic, and that Browning was a poet. Huxley, too, had a highly-cultivated gift of expression. Descriptions of their own sensations and sufferings made by such men in correspondence or private intercourse cannot be accepted without a considerable discount for unconscious or half-conscious exaggeration. We have heard that a famous orator who went over to the majority some years ago occasionally misled his medical attendants by the lurid colors in which he painted agonies which, as a matter of prosaic fact, there was good reason to believe he had not to endure. We are quite willing to admit that writers who must, of necessity also be great readers, and a considerable part of whose work is the correction of proofs, are very likely to overuse and thus damage their eyes. But this is not what Dr. Gould means by eyestrain, which he holds to be due to astigmatism. It may further be granted, for the sake of argument, that astigmatism is responsible for the manifold nervous and gastric, hepatic, and other derangements which he attributes to it—that, in his own words, 'the whole system must often become the vicarious sufferer for the sins of the eye.' Even if we admit that 'at least 80 per cent. or 90 per cent. of headaches and a very large proportion of digestional or nutritional diseases are dependent upon eyestrain,' and that there are in the civilized world 'at least 10,000,000 to 15,000,000' victims of that infirmity, it does not follow that the individual men of genius whose biographical records Dr. Gould has studied were the subjects of astigmatism or eyestrain. This particular fact, we repeat, he does not seem to us to have proved, and, in the absence of definite clinical proof, his explanation of the sufferings of Carlyle, Darwin, and the others, ingenious and plausible as it undoubtedly is, is merely 'bookish theorick.' We confess we have but little faith in master keys which unlock all the secret chambers of pathology. Some years ago the nose was declared by some to be the cause of nearly all the ills which afflict mankind. Now the eye is put forward as a rival; with a little ingenuity we have no doubt that a good case could be made out against the ear. We can easily imagine Hogarth's 'Enraged Musician' the victim of a devastating storm of reflex disturbances. If Dr. Gould's theory be true, nine-tenths of the illness not only of geniuses but of common folk would be cured as by a magician's wand by properly fitting glasses. The world's eyes are out of joint, he says in effect, and spectacles are the only wear. Only they must be made in America. To sum up: While fully recognizing the importance of Dr. Weir Mitchell's discovery that eyestrain is often the unsuspected cause of headache and other disorders, and the practical value of the labors of Dr. Gould and his fellow-workers in developing that discovery, we think that the case has been overstated to such an extent as to make its acceptance by reasonable men very difficult, if not impossible. Dr. Gould thinks statistically in millions as Cecil Rhodes, according to his admirer, Mr. Stead, thought in continents. Largeness of view is an excellent thing in medicine as in other things, when it does not lead to neglect of detail. Medical science, however, is built not on theories but on facts."

Obituary.—Dr. W. S. Playfair, the noted specialist and authority on obstetric medicine, died at St. Andrew's, Scotland, August 13. Dr. Playfair was born in 1836. He was a son of the late George Playfair, Inspector-General of Hospitals in Bengal. His education was obtained at St. Andrew's, and the young physician then became an assistant surgeon in the Bengal army in 1857. After teaching surgery for the year 1859-60 in the Medical College of Calcutta, he returned to London and practised there till his death. He was professor of obstetric medicine in Kings College, consulting physician for the diseases of women and children at the Kings College Hospital, and physician accoucheur to the Duchesses of Edinburgh and Connaught. He was a member of the Athenæum Club. Among his publications were 'The Systematic Treatment of Nerve Prostration and Hysteria'; a 'Handbook of Obstetric Operations,' and 'A System of Gynæcology,' which he jointly edited with Prof. Clifford Allbutt of Cambridge.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, July 25, 1903.

PHYSICAL DEGENERATION OF THE BRITISH RACE—WOMEN DOCTORS IN ENGLAND—HIGH FREQUENCY CURRENTS IN CANCER—THERAPEUTIC APPLICATIONS OF RADIUM.

WE are at present in the throes of one of our periodical spasms of alarm about ourselves. At one time we are told that our trade is leaving us and that Germans are driving us out of the commercial field; another time we are being elbowed out of China by Russia; then our population is becoming stationary; now we are degenerating in physique. That there is some truth in the last notion is shown by a Memorandum that has just been issued by Sir William Taylor, Director General of the Army Medical Service. In that document it is pointed out that although statistics certify to a progressive improvement of the national health, and although athletic records are constantly being broken in regard to all sorts of feats of strength, agility and endurance, it is nevertheless true that a very large proportion of the men who offer themselves for enlistment in the Army are found to be physically unfit for military service. It was recently estimated by General Sir Frederick Maurice that out of every five men who offer themselves for enlistment there are at the end of two years' service only two remaining in the Army. Some are rejected by the recruiting officer; some by the examining medical officer, while others though enlisted are discharged after three months' trial as unlikely to develop into effective soldiers. That is to say, at the end of two years not more than 40 per cent. of the men who wished to become soldiers are actually serving; or, in other words, 60 per cent. of the men who offer themselves for enlistment are physically unfit to serve. This statement suggests the reflection, If these men are unfit for military service, what are they good for? Sir Lauder Brunton, a member of a Committee which has recently been investigating the physique of the rising generation of Scotland asks the same question with regard to the civil population: "Poor in physique as they all are, and poor in mental capacity and power of application as many of them must be, what becomes of them? Many of them probably marry girls as weak as themselves and have children, some of whom go to swell the lists of infant mortality; some to join the criminal classes, while others grow up more weak and incompetent than their parents."

The Director General says that, whether the physical deterioration is partly the consequence of unskilled labor flocking from country districts into towns and there failing to find the means of properly rearing a family, or whether it be due to causes that can be remedied, such as too early marriages and the ignorance of the elements of hygiene on the part of mothers, the result is that among the male adolescents of all below the artisan class, a vast number are of a very low standard of health and physique. Every year there is published in the Report of the Army Medical Department a table in which the recruits examined are classified according to their previous occupations. Analysis of a series of these tables shows that the bulk of British soldiers are drawn from the class of unskilled laborers, that is, from the stratum of the population living in poverty. The recruiting statistics for a period of ten years (1893-1902) shows that the number of men medically examined for enlistment was 679,703 of whom 234,914 were rejected as unfit, giving a rejection ratio of 34.6 per cent.; of the men passed as fit 5,849 broke down within three months after enlistment being at the rate of .9 for this class, while 14,259 or 2.1 per cent. more were discharged as invalids under two years' service. Adding together the rates of rejection for the three classes, it will be found that 37.6 per cent. of all the men examined during the decennial period in question proved to be unfit for military service. It must, however, be borne in mind that these figures do not represent anything like the total number of rejections. A large number of men are rejected by the recruiting officers; these are not medically examined and do not appear in any returns. The Director General evidently thinks that Sir Frederick Maurice's estimate of a total proportion of 60 per cent. of rejection is not far from the truth. Examination of the statistics relating to the causes of rejection of men seeking enlistment by medical officers shows clearly that the majority are rejected on account of causes indicating poor physical development, namely, deficient chest measurement, deficient height and deficient weight. The causes of the decay in the British physique are only too obvious to those who know the conditions under which unskilled laborers, whether in country or in town, have to live in "Merrie England." The problem is an old one: "How is the multitude to be fed?" And further, how is it to be housed in a manner that shall satisfy the demands of common decency and the most rudimentary hygiene? The Director General seems to think that the causes of our physical degeneration have yet to be discovered, for he suggests that an inquiry on the subject should be made by a Commission "As to the composition of which the advice of the College of Physicians and Surgeons might be asked." The suggestion shows a singular confidence in the wisdom of two bodies whose advice in regard to public matters has always been marked by deplorable inaptitude. It was the College of Physicians which in 1867, in the face of the evidence contained in its own report, informed the Government of the day that leprosy was not contagious, a statement which led to the relaxation of measures of precaution throughout the colonies where the disease is endemic. The fitness of the Colleges for dealing with questions requiring even the smallest degree of breadth of view and practical statesmanship is sufficiently shown by the fact that at the present moment they are giving all their energies to an endeavor to defeat the efforts of the General Medical Council to make the five years' curriculum a reality and not a sham. A Commission has already investigated the question of the physical degeneration of Scotsmen, and nothing practical has so far come of its labors. Those of a Commission such as is suggested by the Director-General will doubtless have a similar result.

for, as Lord Salisbury said with cynical candor, no one—and least of all the Government—pays any attention to the recommendations of a Royal Commission.

A niece of Mr. Joseph Chamberlain was recently appointed resident physician at the Royal Free Hospital in this city with which the School of Medicine for Women is in organic communication. This year the school has 230 students, a fact which would seem to show that there is an increasing demand for the services of female doctors. There are now some 115 fully-qualified women practising medicine in London. According to a daily paper "in Wimpole Street there are seven, all, it is understood, with lucrative and increasing practices. Harley Street has four lady doctors." The streets named are two of those where doctors most do congregate, but it by no means follows that the fact of having a brass plate on the door of one of the mansions of these gloomy but fashionable thoroughfares implies a lucrative practice. At the New Hospital for Women, there are two lady doctors on the consulting staff, and thirty-three acting and visiting physicians and surgeons. There are female medical officers at the Canning Town Hospital, Blackfriars Provident Dispensary, Church Army Dispensary, Homer Street, and at the Institution for Diseases of the Eye at Fulham. At the Clapham Hospital, Jeffreys Street, the medical staff includes two ladies. The honorary acting physician at the Midland Hospital, Birmingham, is a lady, and there are visiting or resident lady physicians and surgeons at hospitals in Manchester, Edinburgh, Glasgow, Dundee, Hull, Bristol, Birkenhead and Oxford. Notwithstanding all this it is extremely doubtful whether the movement for admitting women to the medical profession has so far been justified by success in this country. There are several women who earn a respectable living and one or two who have what would be called in the case of a male consultant, a third or fourth rate practice. A few have cooperated in scientific investigation, but not one has independently made a discovery of any note or an original observation of any particular value. There are two or three ladies who operate with fair skill, but not one who has achieved anything like brilliant success in that line. The case is fairly put by a well-informed writer in a recent number of the *Cornhill Magazine*: "It is now many years since the obstacles which debarred women from entering the profession were removed, and the prejudice which the idea of a woman practising medicine aroused a generation ago is now well-nigh extinct. In London, in the North of England, in Scotland, in Ireland, and in Wales alike, the door is open and women have no difficulty in finding the best of professional education. In the University of London, as well as in Manchester and in the universities of Scotland and Ireland, a surprising number graduate each year and acquit themselves as creditably as their masculine *confrères*. Some reserve, however, must be observed in recommending the medical profession as a career for women. India has undoubted need of women doctors and absorbs a large proportion of each batch of graduates; but, so far, there are few signs that any large public demand has been created for them in their own country."

Quacks, like the poor, we have always with us, but at the present time the cancer quack is more than usually prominent in the newspapers here. The most pushful among them are, I am sorry to say, legally qualified members of the medical profession. These men somehow manage to get the most shameless puffs of their methods and results inserted in leading papers. When charged with unprofessional conduct, the injudicious friend is put forward as the offender, and the official censors of the morals of the profession are helpless. The "high frequency current" is now the most popular

of quack cures for cancer, and as nobody knows much about its effects it is not easy to expose the hollowness of their pretensions.

Attempts to warn the public are practically useless because they are put down to the jealousy of the doctors who are credited with the desire to suppress all knowledge but that which is the property of their own craft or "mystery." Not long ago an enthusiastic lady sent the following letter broadcast throughout the land. As far as I am aware it has not yet seen the light but I think it deserves publicity. I suppress the name of the writer and of the doctor whom she advertises:

"You ask me to tell you more about that new treatment for Cancer of which I spoke in our mutual friend's drawing-room, but as nearly everyone who was present has made the same request, I am having an answer printed to send round to friends. It is called the 'High-frequency treatment by electricity; not the "X" Rays,' not the 'Finsen Light' so successful in the cure of Lupus—but a much newer thing only discovered during the last few months. I hasten to add at once that it gives no pain, no discomfort to the patient—rather indeed, a pleasant feeling of exhilaration. By the exceeding force and strength of its oscillations (120,000 per second, equal to 1,000 volts) it kills the germs of the disease, causing the fibers and feelers running to the cells to, so to speak, loose their hold or grip, thus preventing them from sucking up fresh nourishment and generating new life. Consequently, they gradually begin to perish, to wither and to shrivel away. No medicine ever yet invented can do this, no knife yet made either. You ask me why? Because, though a knife may cut away the body of the disease so that it may heal for a time, it cannot possibly reach and cut out all these fibers and feelers with their tentacles—or whatsoever they may be—which, still embedded in their cells, suck up nourishment and generate new life and form a new body. The knife may give these fibers a sort of little shock for a time which allows the surface of the wound to heal for a time, but the germs soon begin to get active again and to work new mischief. The tremendous power of this new 'high-frequency' treatment kills these germs at the very root of their cells. I wish I could put it more scientifically and technically. It is being practised successfully at some hospitals, but very few private doctors have yet been able to go in for it, as the complete apparatus is not only enormously expensive, but so very few medical men are deep students of Electricity, with all its vast possibilities. However, one of the first and foremost of these 'few' is, as I told you, —. He goes, and has gone from the beginning, heart and soul into it, from the time the 'X' Rays were first started, has kept pace step by step with each new discovery, and has the whole apparatus in full working order in his own house. I may just mention too, that one of the most useful points about the treatment is that it never fails to alleviate and soon remove the agonizing pain; while in cases of disorders of the nerves and depression of spirits it is wonderfully efficacious. I do think it is everyone's duty to spread such valuable information far and wide. Do not you?"

A copy of this letter was sent to the King who with characteristic good sense merely acknowledged its receipt and caused the writer to be informed that he had sent it on to the College of Physicians, the President of which, Sir William Church, is also the President of the Cancer Research Fund. About the same time an article appeared in Mr. Astor's paper, the *Pall Mall Gazette*, in which the marvellous effects of the "new" treatment—described as "a triumph of electricity"—in the hands of the same man were vaunted in the most flamboyant style. This moved Sir William Church to point out that the doctor thus presented to the world

as a scientific pioneer and a medical savior of society had not the slightest claim to be considered the inventor of electric currents of high-frequency, or as the originator of the application of such currents for the relief of pain or for the treatment of disease; high-frequency currents having been in use for these purposes for several years. He challenged the befuddled practitioner to submit any evidence he might have collected as to the value of high-frequency currents in the treatment of cancer to the Cancer Research Association. It is needless to add that the challenge was not accepted. But not long afterwards one of our papers—*The Daily Mail*—which models itself on your yellow journals thrilled the country with the announcement that the Royal Commission on Cancer was about to present a report in which high-frequency currents would be recommended as the most effective treatment. This statement, obviously inspired by some of the charlatans who are "running" the treatment, was at once shown to be a pure fabrication and a very clumsily constructed one, inasmuch as no Royal Commission has ever been appointed to investigate cancer and consequently the report and its recommendations were alike imaginary. There are some earnest and honest men who are making a trial of the high-frequency currents, but it is difficult to get information about their work. I am informed that one of our foremost dermatologists has obtained remarkable results by the method, but as he does not yet know how the treatment acts or in what cases it is likely to be efficient, he does not care to publish anything on the subject at present. I have also heard of an apparently complete cure of uterine cancer in a case under the charge of a well-known gynecologist whose reputation for perfect integrity no breath of slander has ever dimmed. On the whole, however, the experience of those who have worked in a really scientific spirit with the high-frequency currents in this country may be summed up in the words of our leading authority in that line, Dr. John Macintyre, of Glasgow, who said not long ago that although the treatment had good constitutional effects and occasionally produced some amelioration of local conditions, he had never seen any case of cure of cancer by this method.

The same careful observer has lately been experimenting with radium. His conclusion is that it cannot be doubted that the salts of radium have an action on diseased tissues, but it cannot yet be said whether they will take the place of some of the other forces, such as X-rays, etc., at present employed in the treatment of lupus, rodent ulcer, and superficial epitheliomata. All that can be said is that something emanates from the compounds of radium which has a very exciting effect and, if pushed far enough, even a destructive power on healthy tissues. The method which he employs is to have the radium enclosed in a small cell with a mica front $\frac{1}{2}$ inch in diameter. This is surrounded by a small piece of indiarubber tube. He has a number of cones made with an opening at the apex into which the indiarubber fitted. They vary in size and depth, but those chosen are usually about $\frac{1}{2}$ inch in depth. The radium is applied to the parts for a period of twenty to forty minutes daily or longer, and the effects on the patients are watched with comparatively little risk. In a case of lupus of the back of the hand the application of radium caused disappearance of the lesion in three weeks; and in one of lupus of the nostrils and nose healing took place in four weeks. Recurrence, however, was observed within two months. In a case of rodent ulcer still under treatment, improvement has been noted. Mackenzie Davidson of the Charing Cross Hospital has confided to a reporter of the *Daily Express* that he has had strikingly successful results with radium in cases of "cancer," that is to say rodent ulcer. As to deep

tumors he said he could not speak, but he let it be understood that he is hopeful. Although he allowed himself to be interviewed by the representative of a newspaper not particularly trustworthy in matters of science Mackenzie Davidson is a thoroughly sound man. Otherwise I should not refer to his work. It is suggested by Mr. Soddy, assistant to Sir William Eamsay, one of the discoverers of argon, that the "radio-active emanations" of radium and thorium may be applied by inhalation to the lungs of sufferers from consumption. We are, it seems to me, like Cortes and his men when, standing upon a peak in Darien, they first beheld the Pacific.

EVIAN-LES-BAINS.

FRENCH SAVOY, August 6.

To the Editor of the MEDICAL NEWS:

DEAR SIR: The season at charming Evian-les-Bains is now in full swing. It is surprising that a spa which unites so many advantages, of location, climate, excellent mineral waters and artificial attractions, is so little known in America. According to the writer's observation the ubiquitous Yankee tourist simply takes a little run over to Evian from Geneva or Lausanne, strolls along the quay Baron de Blouay, and is off on the next steamer. A few American dyspeptics and sufferers from renal and hepatic disorders are found among the large number of valetudinarians, but not near so large a proportion as one sees at other European watering places affording less promise of benefit.

Evian-les-Bains is located on the east shore of the Lake of Geneva, on the Paris, Lyon and Mediterranean system of railways, about 625 kilometers from the French capital. It may be reached in two hours by rail, and in a slightly longer time by steamer from Geneva. The season extends from May 15 to October 1, and the prescribed time of treatment is from twenty-five to thirty days, according to the direction of the physician. The strict surveillance exercised over the health-seeker at the Geneva spas is somewhat relaxed here, the pleasure-loving Latins evidently not being able to tolerate so rigid a régime. It is not to be doubted, however, that excellent results are obtained at Evian. The daily routine is about as follows: Rising at 6 o'clock (the sun in July and August is $1\frac{1}{2}$ to 2 hours high at that time) drinking one or two glasses from the Lower Cachat, taking the bath or douche during morning or afternoon hours according to doctor's orders. A promenade or enjoying the music at the Cachat. At 8 o'clock breakfast; at 10.30 coffee and dominoes at Casino. Concert from 3 to 5 P.M., followed by promenade. Table d'hôte at 6, and at 8 grand concert at the Casino or the play at the theater. One may vary this routine by a sail on the lake. A little walk to the rising ground just back of the lakefront where a magnificent panorama of Mont Blanc, the Dent du Midi and other Alpine summits may be had, or in driving, fishing and various other diversions. At the magnificent Institut Hydrotherapique, recently completed, besides the various forms of hot and cold baths, sprays and douches one finds an excellent gymnasium and a very elaborate electrotherapeutic and mechanio-therapeutic plant. The hotels are numerous and very comfortable, some indeed quite luxurious. The best accommodations may be had at prices ranging from 8 to 15 francs per day for board and room. An almost ridiculously low figure to the American traveler accustomed to Saratoga and other high-class resorts in the United States. The Lower Cachat, which has been in constant use since 1789, is the principal mineral water fountain. The latest reliable analysis made in 1892, by Willm, of Lille, is as follows, estimated in grams per liter:

Calcium carbonate	0.1960
Magnesium carbonate	0.0816
Sodium carbonate	0.0056
Calcium and iron phosphate.....	0.0008
Sodium sulphate	0.0079
Potassium sulphate	0.0052
Sodium chloride	0.0030
Sodium nitrate	0.0029
Silica	0.0142
Lithium iodide	Feeble traces.
Carbonic acid as bicarbonates.....	0.2627
Carbonic acid, free.....	0.0105

Total fixed matter per liter..... 0.3172

From 5 to 15 glasses are taken daily in accordance with the instructions of one of the medical attendants at Evian, of whom there are a dozen or more. The water is very pure and limpid and sparkling.

The analysis shows a very excellent alkaline-carbonated water with ferruginous properties. We have many such in America. If better results are obtained at Evian than at most American spas, it is not due to the superiority of the water, but to the fact that long years of observation and experience have taught the medical men of France that the use of mineral waters is only supplementary to temperate habits, careful diet, etc.

The time is not far distant, the writer trusts and believes, when our own beautiful spas, uniting all the natural attractions which this old earth can afford, will find their proper sphere in medical practice and popular esteem.

J. K. C.

SOCIETY PROCEEDINGS.

BRITISH MEDICAL ASSOCIATION.

Seventy-first Annual Meeting, Held in Swansea, July 28, 29, 30 and 31, 1903.

(Continued from Page 336.)

Discussion on the Vaccination Acts and the Prevention of Smallpox.—Dr. McVail said: "Coming closely to the subject of discussion, the question of vaccinal legislation presents so many aspects as to make it almost impossible to do more than indicate the principal points that call for consideration. But perusal of the weekly reports in the *British Medical Journal* of smallpox in the provinces during the recent widespread prevalence of the disease suggests the importance of obtaining under Act of Parliament special powers for meeting special difficulties. When the country is threatened by cholera or plague the Local Government Board is in the habit of using its powers under the Public Health Act to bring into operation various provisions which are at other times in abeyance. Similarly, when smallpox threatens, the Board should be in a position to issue epidemic regulations either to the whole country or to a defined area. Such regulations should be perfectly definite in scope and purpose, and should at no time be open to the charge of being framed ultra vires. One matter of special importance with which the regulations ought to deal is the prevention of the spread of smallpox by tramps or vagrants. The part played by such people in conveying the disease has long been known, but has lately been much emphasized. Their migratory habits make it very difficult to procure anything like universality of vaccination of their children, or revaccination of their adolescents and adults. At the same time the opportunities which they have of carrying the disease from village to village and from town to town make them a most serious danger to the nation. The question is what exactly should be the measures

enforcible on them. If we assume that next year will see the passing of a Revaccination Act subject to an exemption clause, should tramps who have been in contact with smallpox and require vaccination be excluded from the operation of the clause? In other words, Should compulsory vaccination in their case be absolute? To such a question one naturally replies with an emphatic affirmative, but on consideration I doubt if it would always be found a practicable measure. Even if contacts have chanced to stay on in a lodging-house until the case of smallpox to whose infection they have been exposed has been discovered, the time required to set in motion actual compulsory powers of vaccination, say, by order of a magistrate, might give the varolous disease too long a start to permit of its being overtaken. But quite possibly after exposure to smallpox a whole lodging-houseful of tramps may have distributed themselves all over the country before the existence of the disease had been recognized. In fact, if Parliament is to take any action of this sort, such powers should apply, not merely to tramp contacts, but to all tramps within the scheduled area of the epidemic regulations. Wherever found their vaccinal condition should be ascertained and recorded, and if necessary they should be vaccinated. It can readily be conceived that during smallpox prevalence local authorities may be more anxious to get rid of tramps than to obtain them for vaccination. If there is a risk in their thus being posted on from union to union it might be got over by charging the cost of their vaccination on a wider basis than that of the union—say that of the county, or of the whole area under epidemic regulations—an area which might sometimes be the whole country.

"But quite possibly the legislature may not, even under restrictions of time and place, exclude vagrants from the operation of any generally applicable exemption clause. In that, as in the entire domain of obligatory vaccination, Parliament must, of course, do just as it pleases. If it will not actually enforce the vaccination of vagrants, is there any useful alternative? In recent years tramps under vaccination in lodging-houses have sometimes received from local sanitary authorities a few days' board and lodging. The right to offer this without any question of subsequent surcharge by a public auditor should be definitely conferred by statute. With regard not to tramps in general, but only to tramp contacts, the further suggestion arises whether, in the event of their refusal to accept vaccination, or of the time being obviously past to make smallpox prevention probable, there might be a regulation for their compulsory detention until the incubation period of the disease had gone by. That would sometimes be a very useful measure, and possibly Parliament might sanction such a degree of interference with the liberty of the subject. The usual steps to prevent spread of infection immediately by means of clothing or person would, of course, be taken in every case.

"Under epidemic regulations there ought further to be the amplest powers, not merely for inspection of every place resorted to by vagrants and navvies, whether or not such place be registered as a common lodging-house, but also for the examination of all persons found in such premises, even in the absence of any special reason to suppose them suffering from smallpox. In the Public Health (Scotland) Act of 1897, Section 45 enacts that the medical officer of health may in the daytime enter and inspect any house where he has reason to believe that any infectious disease exists or has recently existed, and may examine any person found in such house. This power to examine persons in addition to premises should, under the regulations, be given independently of actual suspicion of the existence of smallpox in the house. Needless to say, such

a right of examination of apparently healthy persons would constitute a considerable interference with personal liberty. Whether Parliament would grant it I have no idea. Our point is that it would be useful for the detection of smallpox and for the ascertainment of the vaccinal condition; but if the legislature would prefer to risk smallpox rather than confer the power, then it is not we who would have cause to grumble. Once more our advice would be justified by the results either of its acceptance or of its rejection.

"Concerning the relation of the private medical practitioner to official vaccination there are differences of view. I think myself that if a fee were paid for every certificate of vaccination complying with a standard of area and number of marks to be prescribed by the Local Government Board, the effect would be to promote the practice of efficient vaccination without the formal appointment as public vaccinator of every medical man who might choose to apply. If certificates were to be paid for, false certification should be a heavily punishable offence. At present public vaccinators are under serious hardship in being merely contractors dismissible at four weeks' notice, and without any proper official status. This should be remedied in any new legislation. If systematic vaccination and re-vaccination are to be obligatory, then the evolution of the public vaccinator ought to be toward whole-time service, and, at reasonable salaries, that system ought to be economical as well as efficient. It would not come into force all at once, but as appointments become vacant areas could be combined under one officer."

The Midwives Act of 1902.—J. Ward Cousins said: "Up to the first day of April, 1903, any uneducated woman, without any training or experience, could style herself a midwife, and practise as one in any part of England and Wales. This statement is correct; and it appears hard to understand that our country should have so long been behind other European nations in seeking legislation for protecting the lives of women of the humbler class who are unable to obtain skilled help in the hour of danger. The Midwives Act of 1902, there is every reason to hope, will steadily wipe out the ignorance and incapacity of the past. It provides a Central Midwives Board to regulate the training of midwives, the issue of certificates after examination, and the annual publication of a Midwives Roll. Moreover, the Board is empowered to regulate and restrain within proper limits the practice of midwives, and the carrying out of all the provisions of the Act, with the approval of the Privy Council. After April 1, 1905, no woman will be able to style herself a midwife unless certified under the Act. After April 1, 1910, no woman will be allowed to practise for gain as a midwife unless she is certified as the Act provides. Up to March, 1905, women holding certain certificates mentioned in the Act, or other certificates approved by the Midwives Board, may claim to be certified. Women also who can satisfy the Central Board that they have been in actual practice as midwives for at least one year prior to July 31, 1902, and that they bear a good character, may claim to be certified under the Act.

"Now, the largest number will be admitted as midwives, and will be placed on the first roll, belong to the third class, and many of them will have been very imperfectly trained. Now, let us hope that the local supervising authorities throughout the country will be able to find some means of helping these women to obtain an increase both of knowledge and efficiency.

Local Supervising Authorities.—"The Midwives Act is to be carried out by the important process of decentralization. Every council of a county or county borough throughout England and Wales is the local

supervising authority over midwives, but these bodies can delegate their duties to committees or to the district councils. The provision for carrying out the Act by the help of local bodies is a very helpful and practical method. Local bodies are well able to do the work and look after their own interests, and it is my opinion that the success of the Act will greatly depend upon the work done by the local supervising authorities.

"The local authorities may delegate their powers to a committee consisting wholly or partly of members of the council. The Act wisely permits also the appointment of women members on the committee, selected by the council, and as the Act principally involves the interests of women, it appears very desirable that the authority should secure the services of two women at least who are recognized workers and conversant with the needs of the locality.

"In Sweden the midwife has to be examined every year by the officer of health of the district as to the state of her knowledge in the presence of witnesses, and should her knowledge on any material subject be found deficient she can be suspended for a period from practice.

Duties and Restrictions.—"The midwife by the Act is permitted to attend normal labor only, and she is compelled to send for a qualified registered practitioner in every emergency. Her ability to recognize danger and abnormality in either mother or child will be an important test of her training and efficiency.

"The midwives in Switzerland are required to make a solemn affirmation on receiving their certificate. They promise on oath to practise their profession with reverence, patience, and earnest endeavor, and on every occasion to send for a physician in all abnormalities and also to abstain from intermeddling with his duties. If any midwife outstrips her powers in practice she can be fined from 10 to 1,000 francs.

Midwives and the Prescribing of Drugs.—"I shall now refer to a subject on which I find there is great difference of opinion. Some consider it sufficient for a midwife just to enter in a book every occasion on which she is under the necessity of administering any drug, whether scheduled as a poison or not, the dose, and the time and cause of its administration. Others are of opinion that the safety of women will be endangered if active remedies are placed in the hands of any one but registered practitioners. They consider that any ordinary remedy that the patients themselves would take may be suggested by the midwife; that in a great emergency, whenever an active drug is administered, the case must be considered abnormal and a practitioner must be consulted. Can, then, the administration of morphine, opium, or other dangerous remedies be placed at the discretion of thousands of unqualified persons who are only certified for attendance upon normal labor, without involving the safety of the public?

"In Sweden midwives are allowed to give some ordinary remedies, but they are bound by law not to order any active medicine for either the mother or the child without calling in a medical man.

Notification.—"The duty of notifying an infectious fever must be undertaken by the registered practitioner who is called in by the midwife to attend the case. Medical men are required to notify puerperal fever and other infectious disorders. The midwife does not diagnose the disease, but sends for the doctor on the occurrence of urgent symptoms. The record of the midwife will show the number of cases of fever which have occurred in her practice, and the name of the doctor who assisted her. Information of all cases of

fever ought to be forwarded at once to the local supervising authority, and also to the county medical officer of health.

"After any attendance upon a patient suffering from puerperal or any other illness supposed to be infectious, the midwife must disinfect herself, her appliances, and have her clothing thoroughly disinfected before going to another case. The local supervising authority may suspend a midwife from practice if suspension appears necessary to prevent the spread of disease. In Sweden a midwife must abstain from practice for a week after attending puerperal fever, and live as much as possible in the open air.

Stillbirths.—"The number of cases of stillbirth in any area is at present unknown, and we can not attempt to ride over existing legislation. The midwife has no power to grant any medical certificate or any certificate of stillbirth or death. Her record, however, will show the number of cases of stillbirth that she has attended, and this number will be considered by the local supervising authority. In this way the total number of stillbirths attended by certified midwives within any area can be readily ascertained. Beyond this voluntary information nothing can be known, and for the present we must wait for the amendment of the law as to death certification and registration. Stillborn children are too easily disposed of, and no doubt many evils and irregular practices are hidden which ought to be investigated. Let us hope that the successful working of the Midwives Act and the records of the local supervising authorities may turn out to be the successful insertion of the thin end of the wedge of progress.

Improved Household Sanitation.—"The educated midwives will help their patients to put in order their houses and carry out sanitary precautions for their own protection. They will teach personal cleanliness and the value of cleanliness at home, and, as far as possible, they will surround their patients with sanitary precautions. I believe that the work of midwives in promoting reform in the houses of the poor will have a wide and wholesome influence. They will be brought face to face with the question how best to deal with overcrowded and insanitary areas, and their efforts will tend to create a broader interest in the subject of rehousing the poorer classes under new conditions which will benefit their health and arrest the spread of disease. Interest has been recently manifested by the activity of many members of Parliament, by the introduction of projects for remedial legislation, and by the work of many voluntary associations, and I think it is not too much to hope that indirectly the silent work of educated midwives will prove a wholesome stimulus to the higher classes of society and arouse their sympathy in the great work of improving the dwelling houses of the laboring classes of our country.

"England and Wales have long been lagging behind France, Russia, Sweden, Germany, and Switzerland in the education of State control of midwives. The great importance of the reform in the practice of midwifery in our country has long been loudly accentuated by the consideration of the small number of trained and intelligent midwives at the present time compared with the host of unqualified and ignorant women who are unfortunately almost everywhere engaged by the humbler classes. It has been estimated by authorities that 60 or 70 per cent. of the births in Great Britain take place without the presence of a qualified practitioner, and that in many of the poorer districts as many as 70 or 80 per cent. of the births are attended by women. Surely these statements demand our earnest consideration, and I am bold enough to express a hope that more general interest will be developed in this great

step in the right direction, especially when we consider that the dangers of childbirth are practically confined to the poorer class of our countrywomen, who, from lack of means, are unable to obtain skilled labor in the hour of need."

Spread of Enteric Fever and Other Forms of Illness by Sewage-polluted Shellfish.—Dr. Arthur Newsholme, of Brighton, said that in March, 1894, he reported to the Brighton Town Council a series of cases of enteric fever and diarrhea which appeared to be due to oysters obtained from polluted layings at Southwick, near Brighton. A copy of this report, with further details based on later experience, will be found in the forthcoming volume of evidence before the Royal Commission on Sewage Disposal.

The evidence on the strength of which enteric fever, attacks of diarrhea (resembling those caused by the Gaertner bacillus), and allied illnesses are ascribed to the ingestion of oysters and other mollusks requires consideration in connection with outbreaks of two kinds—(a) sporadic cases, (b) definite groups of cases. Of the latter the most remarkable are the outbreak among the students of the Wesleyan University, Connecticut, in which 25 per cent. of the students attending an oyster supper were subsequently attacked by enteric fever, and the simultaneous outbreaks following after mayoral banquets at Winchester and Southampton recently reported on by Dr. Bulstrode. In these two outbreaks, out of 266 total guests 21 (all of whom had eaten oysters), or about 8 per cent., suffered from enteric fever, while 118, or 44.3 per cent., of the total guests, all of whom except 3 had eaten oysters, suffered from minor forms of illness. In the two banquets 38 guests are stated not to have eaten oysters; none of these had enteric fever, hence the number of attacks among oyster eaters was 9.2 per cent. In Brighton the cases ascribed yearly to this cause (21 in 1894, 19 in 1895, 31 in 1896, 30 in 1897, 41 in 1898, 52 in 1899, 17 in 1900, 9 in 1901, and 21 in 1902) have in most instances occurred sporadically at irregular intervals and without any demonstrated relationship to other cases. In other words, on the assumption of causative relationship to the Southwick oysters which had been eaten by the patients, the infection must have been frequently present in a certain proportion of these oysters. In the paper already mentioned, he showed that this fitted in with the epidemiological facts of the case, no long interval elapsing between the occurrence of cases of enteric fever in the Southwick and Shoreham districts and in the inhabitants of Brighton who had eaten oysters or mussels contaminated by the Southwick or Shoreham sewage. It is obviously much more difficult to prove the relationship between cause and effect in connection with such sporadic cases than when definitely associated cases occur. The chief evidence on the strength of which he arrived at the conclusion that this fairly steady stream of sporadic cases was caused by sewage-polluted shellfish may be classed under four heads: (1) Clinical evidence; (2) exclusion of other known causes; (3) topographical evidence; (4) bacteriological and chemical evidence. These are placed in the order of importance. The three first are, he thinks, immensely more important and more trustworthy than the fourth, both on the negative and the positive side, though no line of evidence should be neglected.

Clinical Evidence.—The clinical evidence is usually as follows: About ten to sixteen days after eating oysters or mussels the patient falls with enteric fever. Very often the definite attack of fever has been preceded by a violent attack of diarrhea and vomiting occurring about twelve to twenty-four hours after the ingestion of the shellfish. Either (1) the person who

has partaken of the shellfish is the only one affected, or (2) other members of the family who have partaken of shellfish at the same time escape or suffer only from minor disorder. Numerous instances of both these are given in my annual reports. In the latter cases it is occasionally observed that the patient noticed something "queer" about his share of the oysters. Further, it is to be remembered that only a certain proportion of persons are susceptible to infection, that it is not reasonable to assume that every mollusk from a sewage-polluted source contains the typhoid bacillus, and that, even when an outbreak of enteric fever is caused by contaminated milk or water, only a small percentage of the persons drinking these are attacked.

The clinical evidence is supported by the ability to exclude other known causes. Cases of enteric fever due to contaminated water or milk nearly always occur in groups, while those due to oysters and other mollusks are, apart from certain exceptional outbreaks, generally sporadic. In a minority of the cases the possibility of the attack of enteric fever being caused by defective house drains had to be considered. On this point it was noteworthy that the attack generally occurred in the head of the household, who was least at home, his wife and children escaping. As more exact inquiries are made, it will now be generally agreed that defects of house drainage as a cause of enteric fever can be relegated more and more into obscurity. Given, on the one hand, bad drains, and on the other hand the fact that the only person suffering in a given house from enteric fever has partaken of oysters known to have been subject to pollution by sewage, we are bound to decide that in all probability the latter are responsible for the attack of enteric fever.

The topographical evidence is as follows. The oysters or other mollusks are traced to their original layings. In these layings, or more often in the market ponds in which they are finally placed before being sent to market, the oysters are found to be subjected to more or less gross contamination by sewage. The gravity of this contamination depends upon the proximity of the sewage outfall to the layings or the ponds, on the set of the tides, and on the size of the population whose sewage discharges at this point. Obviously the risk of the typhoid bacillus being conveyed to the oysters is much greater if they are subject to contamination by the drainage of several thousand persons than if only a small hamlet is concerned in the pollution. In his own experience, which has been concerned chiefly with oysters and mussels from Shoreham Harbor (Southwick, etc.) and with oysters from Emsworth, there has been no difficulty in stating that there has been sewage-contamination of the grossest character.

Bacteriological and chemical evidence has been placed last, as least important. It is not for him to assess the value attaching to the detection of the *Bacillus coli communis* in a given oyster. He is quite clear, however, that if this organism were not found he should brush the certificate to this effect aside as valueless in the face of clinical and topographical evidence that oysters from a given source were responsible for cases of enteric fever. If it were found its presence would be useful confirmatory evidence.

River and Seashore Pollution as it Affects Shellfish.—Dr. T. C. Nash, Medical Officer of Health, Southend-on-Sea, said: "In my opinion it should be illegal to expose shellfish for sale unless they are from layings which are either entirely above suspicion, or at any rate are a very considerable distance from any obvious source of pollution, and in such a position as to be covered with seawater at all states of the tide, and unless a bacterial standard such as I have suggested

elsewhere¹ is satisfied. I feel inclined to go even further, and say that, as with a public water supply, so also with all kinds of public food supplies, including shellfish—it ought to be an absolute condition that these should be uncontaminable by drainage. A proper control of shellfish will, I think, secure a notable reduction in the seasonal incidence of typhoid fever and a moderate reduction in that of diarrheal diseases generally."

"There is bound to be some opposition in enforcing restrictions on the shellfish industry until the shellfish merchants recognize that it is in their own interests to take every possible care to obtain their shellfish from the purest possible layings. As a public health officer I consider it my duty to warn the public against eating shellfish from sewage-contaminated sources. In my own district the majority of the local shellfish merchants have realized the importance of taking every possible precaution. They now obtain their cockles from Whitstable from a spot well removed from any obvious pollution, instead of from the sewage-contaminated creek in a neighboring district as formerly. In addition they boil them for at least three minutes and a half in pure water. If all cockle vendors would take the same precautions, I venture to think that this variety of shellfish might be safely eaten, and that the cockle industry, if intelligently and carefully managed under proper sanitary supervision, may yet flourish and cease to be a serious danger to the public health.

"With respect to oysters, however, the conditions as to the cultivation, layings, and supervision must be most stringent and exacting, because this form of shellfish is generally eaten raw, and is, in my opinion, dangerous unless all the conditions are above any suspicion of sewage pollution.

"I have noticed that, generally speaking, the type of typhoid fever following the ingestion of par-boiled cockles is milder than that observed when raw shellfish are eaten. The inference is that the partial cooking of cockles has diminished the numbers or attenuated the virulence of the contained pathogenic bacteria of typhoid. On the other hand, Dr. Elliston of Ipswich has observed a severe type of typhoid fever following the ingestion of raw cockles collected from the Orwell. This would be in accordance with Dr. Klein's observation that typhoid bacilli actually multiply within the cockle even though the cockles may be put to clean for three days in clean seawater. The importance of these observations can not be overestimated, nor those of Professors Klein, Boyce, and Hewlett, that the oyster naturally does not contain the *Bacillus coli* or *Bacillus enteritidis sporogenes*, and that, therefore, the presence of these organisms is strong evidence of pollution of the shellfish by sewage or a sewage effluent.

"We must remember that different kinds of shellfish are eaten by different classes of people largely according to their means. This was happily put by Sir James Crichton-Browne, who spoke of 'the aristocratic oyster, the plebeian cockle, and the Hooligan mussel.'" We must also bear in mind that other forms of food besides water, milk, and shellfish occasionally carry the infective germ of typhoid. In my experience watercress is the next most likely agent, and this is not to be wondered at, considering that this pleasant vegetable is often obtained from streams which are liable to occasional pollution, if not constantly polluted. Other uncooked vegetables such as salads, lettuce, and radishes must also be borne in mind. Ice creams may occasionally be the vehicle. It is important to point out that whenever shellfish or uncooked vegetables are the vehicles of infection, the real source of infection is really, as usual, a polluted water, and therefore really only another form of water-borne typhoid.

"Uncooked vegetables are eaten in all parts of the

country, but it is a significant fact that typhoid fever is, as a rule, more prevalent in littoral coast towns (this is so at least in Essex), where shellfish are abundant; and in large centers of population inland which import considerable quantities of shellfish. Infected dust and fabrics, and flies, no doubt all play some slight part in securing the admission of typhoid bacilli to articles of food, or directly to the mouth; but in my opinion these sources of infection are comparatively rare in this country. But infected fabrics and infected flies certainly account for a considerable proportion of secondary cases where the primary cases have followed the use of infected water, milk, or shellfish.

"Schemes for the purification of sewage may prove disastrous as regards the pollution of shellfish. The creek to which I have alluded more than once is a case in point. Though this creek has for years past been subjected to some pollution by the discharge of crude sewage, it latterly has received the sewage of the whole town, which numbers about 4,000 residents, besides a considerable number of visitors in the summer. The sewage is treated bacterially in contact beds, and the effluent is discharged into the creek a few hundred yards above the cockle layings. Though a considerable degree of chemical purification may be thus achieved we know that bacterially the effluent is practically as impure as the crude sewage, and that we can not expect contact beds to keep back typhoid bacilli. Hence this method of sewage treatment has rendered this creek even more dangerous than formerly, for whereas formerly, it was necessary for one of only a very few houses to harbor a case of typhoid fever in order for the specific germ to enter the waters of the creek, nowadays it is only necessary for a case of typhoid fever to occur anywhere in the town, even a mile away, to run the almost certain risk of pollution by the specific microbe. Hence these cockle layings are obviously much more dangerous since the bacterial beds installation than formerly. This is an important point to bear in mind when advising a sanitary authority as to the treatment of sewage for a town which has a shellfish industry."

REFERENCES.

1. Evidence before the Royal Commission on Sewage Disposal.
2. See Trans. Epid. Soc., 1903. "The Seasonal Incidence of Typhoid Fever and Diarrhea," by J. T. C. Nash, M.D.
3. Presidential Address to the Sanitary Inspectors' Association, January, 1903.
4. Firth and Horrocks, British Medical Journal, 1902, II, p. 936.

(To be Continued.)

BOOK REVIEWS.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY, 1903. Under the General Editorial Charge of GEO. M. GOULD, M.D. W. B. Saunders & Co., Philadelphia, New York, London.

If we attempt to compare any one, or all, of the numerous year-books with this volume, a novice would at once comment on the impossibility of the task. In typography, in bookbinding, in the detail of its general management, in the importance given to the most critical points of surgical progress—in short in every respect, this year-book is fully equal to its predecessors. No student or practitioner who wishes to keep abreast of the times can possibly dispense with it.

A full and interesting account is given of the classic case of President McKinley. Particular attention is shown the new methods of massive infiltration anesthesia as perfected by Matas, and that new and important department of surgery which deals with the mitigation of deformities by the subcutaneous introduction of paraffin has received most careful attention.

Of particular interest in the Section on Obstetrics is the detailed article touching on the xiphopagus twins Radica and Doodica. Gynecology received its full share of space and an unusual amount of illustrating is accorded it. Not unimportant are the full details of an improved angiotribe with an illustration of its application to hysterectomy. Orthopedic surgery receives apt attention, a simple and practical wrench for the correction of stubborn deformities being among the important devices shown. The eye, ear, throat and nose are given generous space and should be looked over by everybody interested in those departments of surgery. Last but not least, is a chapter on anatomy which relates the findings both microscopical and macroscopical of the last year.

THE PROTOZOA AND DISEASE. By J. JACKSON CLARKE, M.D., London. William Wood & Co., New York.

This small work of 177 pages is an excellent straightforward account of the many forms of protozoa that are known to infect man and the lower animals. The book is to be preferred to many similar works of the kind in that, instead of presenting a discrete, unorganized series of facts concerning this important branch of parasitology, it deals with the subject: (1) from the strictly zoological point of view and (2) from the standpoint of the systematic student. Thus, whereas one might consider at first sight a preponderance of zoological information in the work to the detriment of its pathological relationships, it must clearly be seen that if one is to get a thorough knowledge of this steadily widening branch of medicine it will be necessary to get at the fundamental anatomical features of this class of organisms. The work's conciseness as well as its logical arrangement commends it.

THE ROENTGEN RAYS IN MEDICINE AND SURGERY AS AN AID IN DIAGNOSIS AND AS A THERAPEUTIC AGENT. Designed for the Use of Practitioners and Students. By FRANCIS H. WILLIAMS, M.D. Third Edition. The Macmillan Co., New York.

We have had occasion to commend this work in unmeasured terms. It has been up to within the last year the only work of its kind and remains the leading book dealing with the general use of the X-ray in medicine and surgery. The third edition the author considers a report of progress rather than a final presentation and the book has been largely rewritten and special chapters on the X-rays as a therapeutic agent added. Treatment of diseases of the skin and new growths is further presented and there is finally added a bibliography of recent work with the X-ray.

Any one who does anything whatever with the X-rays will find this work invaluable and for those who have never utilized this important aid in diagnosis and therapeutics they neglect their opportunities in not having a work of this kind.

A TREATISE ON THE CARE OF THE EXPECTANT MOTHER, DURING PREGNANCY AND CHILDBIRTH AND CARE OF THE CHILD FROM BIRTH UNTIL PUBERTY. By W. LOUIS HOWE, M.D. F. A. Davis Co., Philadelphia.

This is all told in 64 duodecimal pages. The book consists of short paragraphs that would be very useful to the young mother. There is very little that is new in the book, as would naturally be supposed, the author disclaiming any originality, his object being to put the expectant mother on a common-sense footing as to her condition, the care of herself during the period of pregnancy and the care of the child after birth. As to the care of the child after puberty the instruction is very inadequate.

THE CARE OF THE BABY. A Manual for Mothers and Nurses. By J. P. CROZIER GRIFFITH, M.D. Third Edition. W. B. Saunders & Co., Philadelphia, New York and London.

THERE have been many books published within the last two years on the care of the baby. Dr. Griffith's has the distinction of having been one of the very first in this field and in its present third edition it reflects ripened judgment not only from the standpoint of the pediatricist but from that of the book writer.

Very little need be added to our previous reviews of this work. The present edition differs from the previous ones in that it has been thoroughly revised, carefully rewritten and a large number of illustrations have been added. It is, we believe, one of the very best of the popular works that can be recommended by the profession to the laity.

MATERIA MEDICA AND THERAPEUTICS. By A. A. STEVENS, A.M., M.D. Third Edition. W. B. Saunders & Co., Philadelphia, New York and London.

THIS text-book of Dr. Stevens was a very popular one on its first appearance. It has now been thoroughly revised, reset, and brought to date so that at the present time it represents a very handy and convenient text-book on materia medica and applied therapeutics.

It is not expected to be a monograph on physiological action, but represents a carefully condensed account of what is sound in our knowledge of this branch. It can be cordially recommended to the beginner in materia medica.

A THESAURUS OF MEDICAL WORDS AND PHRASES. By WILFRED M. BARTON, M.D., and WALTER A. WELLS, M.D. W. B. Saunders & Co., Philadelphia, New York and London.

It was a happy idea, this, of the author's, to give us a medical thesaurus. It is the only one published and for every doctor who does any writing at all or reading, who desires to hunt out synonyms and antonyms the work will be invaluable.

It is not an encyclopedia nor a dictionary, but is a convenient handy volume for reference along the lines indicated.

We wish for it a very cordial reception.

URIC ACID AS A FACTOR IN THE CAUSATION OF DISEASE. By ALEXANDER HAIG, M.A., M.D., F.R.C.P. Sixth edition. P. Blakiston's Son & Co, Philadelphia.

It is a very pleasant thing indeed to ride a hobby and the mental strabismus that results from a ten years' uninterrupted round the ring performance is well shown in this bulky book of Dr. Haig's.

We believe that it will not be many years before the uric acid hypothesis will be laid on the shelf and Dr. Haig's work be considered another monument to the ignorance of the times. In saying this, however, it should not be forgotten that the uric acid hypothesis of which Dr. Haig has been the most consistent originator, supporter and augmentor, has played a very definite and useful rôle in the study of disease processes. We have not the slightest doubt that the zealot's zeal of the author and his followers focused the attention of all practitioners on the desirability of a careful study of perverted metabolism and laid the foundation of much useful knowledge.

It is sometimes necessary for a false prophet to arise in order that great truths may be learned. Dr. Haig's uric acid hypothesis has served its day. If in the

seventh edition Dr. Haig should cut his work down to 200 pages and tell us really what is worth knowing about the relationships of disease to disturbed proteid metabolism, taking the occasion to consider the work of physiological chemists who work in laboratories as well as in clinics, he would confer a great favor on the profession, but we fear that he has ridden his hobby so long that he is incapable of distinguishing between fact and error.

Turning to the book in critical manner, we can not feel but almost every page contains some misstatement. The chapter on uric acid and the circulation being a perfect jumble of disconnected erroneous statements or half truths that a really scientific man should be ashamed to put forth in this day as facts.

THE EXACT SCIENCE OF HEALTH BASED UPON LIFE'S GREAT LAW. By ROBERT WALTER, M.D. Vol. I. Principles. Edgar S. Werner Publishing Co., New York.

THIS is an interesting work of 302 pages, dealing with a side of science that the doctor rarely considers. In fact he is so busy with the ordinary routine of his day's labor that he does not have time to discuss, much less read about, some of the philosophical principles related to the phenomena of the nature of disease and the processes of cure.

Life's great law, as defined by the author, recognizes that "every particle of living matter in the organized body is endowed with an instinct of self-preservation, sustained by a force inherent in the organism, usually called vital force, the success of whose work is directly proportioned to the amount of force and inversely as the degree of its activity."

The author then goes on to discuss the "constitution of nature," "heat and light," electricity and magnetism being considered as incident forces.

Transmutation Fallacies, Vital Science in its Relation to Philosophy; Life, its Nature and Source, Life's Secondary Laws, Social and Scientific Paradoxes: Health and Disease; Good Health and How to Regain it; The Vital Reservoir and How to Fill It; Vital Development and How to Secure it, are all chapters in this interesting résumé.

As this volume is but the first of a series, the author has not completely elaborated his argument, and we must wait for a second volume to pass judgment.

DISEASE OF THE PANCREAS, Its Cause and Nature. By EUGENE L. OPIE, M.D., Associate in Pathology in Johns Hopkins University; Fellow of the Rockefeller Institute of Medical Research. J. B. Lippincott Co., Philadelphia and London.

THE pancreas has remained one of the last of the organs of the body to yield up its secrets. Owing to a number of special conditions connected with its shape, size, location, its color and consistency, and its rapid disintegration, there is no organ of the body the pathological changes in which are more difficult to recognize and when recognized more difficult of interpretation.

The structure and functions of the gland are very little known and it is especially appropriate that a work of this kind should be presented, summing up our knowledge of the diseases associated with changes in the pancreas.

No one in this country can speak with more authority than Dr. Opie and we congratulate him on the excellent work here presented. We commend it most heartily to the attention of the profession and trust that with this introduction our lack of knowledge of pancreatic diseases may no longer remain an opprobrium in medicine.